

# FLIGHT

First Aero Weekly in the World.

Founder and Editor: STANLEY SPOONER.

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport.

OFFICIAL ORGAN OF THE ROYAL AERO CLUB OF THE UNITED KINGDOM.

No. 392. (No. 26, Vol. VIII.)

JUNE 29, 1916.

[Weekly, Price 1d.  
Post Free, 1½d.]

## Flight.

Editorial Office: 44, ST. MARTIN'S LANE, LONDON, W.C.

Telegrams: Truditur, Westrand, London. Telephone: Gerrard 1828.

Annual Subscription Rates, Post Free.

United Kingdom ... 6s. 6d. Abroad ... 11s. 6d.

## CONTENTS.

### Editorial Comment:

	PAGE
The Recognition of Air Service Work	537
Underlining the Service Work	538
The Roll of Honour	538

The British Air Services	539
The Flying Services Fund—Administered by the Royal Aero Club	540
Honours	541
Dirigibles for Sport. By S. A. Collins, M. A. S., A.M.I.A.E.	543
From the British Flying Grounds	545
Aircraft Workers at Play	546
Armchair Reflections. By the "Dreamer"	548
Air Work in Egypt	549
Questions in Parliament	550
Personals	550
The R.F.C. Inquiry	551
Aircraft Work at the Front. Official Information	556
Legal Intelligence	558

## TO OUR READERS.

The Supply of "FLIGHT." Important Notice.

Order "FLIGHT" to be either delivered or reserved for you regularly.

As the demand for "FLIGHT" is so great each week, it is of the utmost importance that readers should place their orders *firmly* for copies of "FLIGHT" at the bookstalls, their newsagents, or direct from the publishers, at 44, St. Martin's Lane, W.C., if they wish to secure a copy every week and avoid disappointment. The stringent Government restrictions in regard to the supply of printing paper necessitates this precaution in order that only actual numbers required are printed, and all wastage by unsold copies may thereby be reduced to a minimum, if not eliminated.

THE PUBLISHERS.

## EDITORIAL COMMENT.

**P**ROBABLY from the record which has been consistently gathered together in "FLIGHT" of what has been allowed to transpire through the press, since the war commenced, of a very minute amount of the good work accomplished by the British Air Services and those of our Allies, there are very few who do not appreciate what an all-governing factor towards success the aerial arm of the forces has proved to be. From time to time the veil has been

officially lifted, and a summary has been published of a few more immediately outstanding details of individual

The deeds, this especially emerging through the lists of well-deserved honours which have from time to time been awarded. Many of the thrilling details of these necessarily brief stories of heroism, even

at this period of aerial warfare, are almost unbelievable by the man in the street, mainly by reason of the impossibility of those unacquainted practically with the art of flying, being able to appreciate the almost superhuman control which by practice and experience it has been possible to attain under the hands of the "born" air pilot, in the incredibly short period since the riding of the air proved to be an accomplished fact. Another step towards the official recognition of the positively unique position which aviation now occupies in any scheme of campaign undertaken against our enemies is forthcoming in the reports of Major-General A. Wilson, C.B., on our operations in Egypt, just published in the despatches from General Sir John Maxwell, K.C.B. Certainly no more graphic official account has so far appeared than this history of air work during the operations in Egypt. The constant references to actual facts are more convincing than any cut-and-dried journalistic descriptions of happenings, however brilliant in style, could possibly be. Such constantly recurring items, in some form or another, as "A hostile force of 8,000 to 10,000 was located near — by a naval hydro-aeroplane," and "a Turkish force was reported at —," and "confirmed by aerial reconnaissance the next day"; "On the 5th inst. our aeroplanes reported that the enemy were retiring towards —, while those who had been in front of No. 2 section appeared to have concentrated about —," &c., are

to be found cropping up, quite as a matter of ordinary routine, throughout the series of reports, and it is gratifying to know that the services of the men engaged in this particular sphere of the war, are recognised by generous mention in the despatches sent in by the Commander of the Force in Egypt. The admirable work of our R.F.C. men—and in this connection the French Hydro-aeroplane Squadron, which was working in co-operation with the forces, should be bracketed—is the more notable from the fact that it is particularly pointed out by General Sir John Maxwell that the R.F.C. pilots were “much handicapped by inferior types of machines,” but “notwithstanding these drawbacks, they furnished me regularly with all information regarding the movements of the enemy.” In regard to the quality of these machines, which the pilots had to utilise to the best of their ability, it should be remembered that the date of the operations to which these despatches refer, goes back to the early stages of the war—November and December, 1914—when the practical effects were being appreciated of past official neglect to grasp in good time the meaning of the power of aircraft in modern tactical warfare. Since then such enormous strides have been made in making up for previous shortcomings in this direction that it is difficult to visualise at this lapse of time how much more vital even than they were the pilots might have proved themselves to be, in helping forward the plans of the C.O. A graceful tribute to the help of the French seaplane squadron is made by General Maxwell, who, he points out, being “equipped with hydro-aeroplanes with floats, ran great risks in undertaking land reconnaissance.” Air work in the desert was found to be particularly helpful in watching the movements of the enemy, who apparently contemplated making sudden attacks from the oases which they occupied on our troops located near the Nile Valley. Here was inaugurated that system of depôts in the desert, which we have so many years back contemplated as being one of the means whereby aviation in these barren districts would be evolved. In Major-General Wilson's report he refers to this scheme as follows:—

“All this time the oases were kept under constant observation by means of aeroplanes. Very long flights

were necessary, and to reduce them as much as possible a system of advanced depôts in the desert was started. The credit for originating this system is due to Lieutenant (now Captain) Van Rynefeld, R.F.C., and to Mr. Jennings Bramley, of the Sudan Civil Service, and was first put into practice on the occasion of the flight to Qara mentioned in my previous despatch.”

This is but a beginning, carried through under stress of emergency. But the experience gained will, without doubt, be taken advantage of, and in the years following the war we can imagine practical steps being taken to establish a well thought-out chain of depôts which will link up parts now so widely separated by natural objects as to render them as far apart relatively to each other as the two poles.

Such possibilities alone should give pause to those few croakers who still fail to see anything but stagnation for aerial navigation in the future.

♦ ♦ ♦

## Underlining the Service Work.

Nothing could be more encouraging than the generous recognition by the award of honours in most of the lists, as they are issued from time to time, to individual members of the R.N.A.S. and R.F.C. Only a few weeks ago the latter had over a dozen names in the King's list of D.S.O.'s, the Military Cross and D.C.M.; whilst a record may be surely claimed, we think, for the former in the list of awards to naval officers and men which appeared in the *London Gazette* of the 22nd. In this list 33 appointments to D.S.O. and D.S.C. in all were announced. Of these the R.N.A.S. claimed no less than seven out of 11 D.S.O.'s and 14 out of 22 D.S.C.'s. The range of services for which these honours are distributed is very great, including outstanding deeds on the British and French coasts, in the Mediterranean, at Constantinople and over the sea—emphasising the versatility of the valuable services which fall to the lot of the flying officers to see through. There are many prizes being won in this long drawn out war, and we are more than satisfied to see such a goodly share still continue falling in increasing ratio to the service which but a decade ago had positively no existence.

✕ ✕

## Roll of Honour.

THE Secretary of the Admiralty announces the following casualties:—

### Previously reported Missing, now reported Died as a Prisoner of War in Germany.

Probationary Flight Sub-Lieutenant Kenneth M. van Allen, R.N.

### Seriously Injured (June 24th).

Flight Sub-Lieutenant Kenneth V. Hooper, R.N.

### Injured (June 23rd).

Probationary Flight Sub-Lieutenant Valentine E. Sieveking, R.N.

### Slightly Injured (June 23rd).

Flight-Commander Henry M. Cave-Brown-Cave, R.N. (Engineer-Lieutenant, R.N.).

### Injured.

Probationary Flight Sub-Lieutenant Charles Huddy, R.N.

The following casualties have been officially announced by the War Office:—

### Killed.

Second Lieutenant J. Gilson, Devon Regt. and R.F.C.

### Wounded.

Captain F. E. Hellyer, Hampshire Regt. and R.F.C.  
Captain M. McE. Bell-Irving, D.S.O., Royal Flying Corps.  
Second Lieutenant W. R. D. Shaw, Essex Regt. and R.F.C.

Second Lieutenant G. N. Anderson, Yeomanry and R.F.C.  
Second Lieutenant W. E. Nixon, K. O. Scot. Bord. and R.F.C.  
Second Lieutenant T. S. Roadley, S. Staff. Regt., attached R.F.C.

### Missing.

Second Lieutenant J. Cooke, Durham L.I., attached R.F.C.  
Second Lieutenant W. D. S. Paterson, Royal Flying Corps.  
Second Lieutenant C. E. Rogers, Royal Flying Corps.  
Second Lieutenant J. R. B. Savage, Royal Flying Corps.

### Captured at Kut.

Reported from the Base as believed to have been taken prisoners at Kut-el-Amara. Official lists have not yet been received from the Turkish Government:—

Royal Flying Corps.—6242 2nd Class Air-Mechanic S. G. Butler; 445 Flight-Sergeant H. Campbell; 533 1st Class Air-Mechanic W. Candy; 1299 2nd Class Air-Mechanic L. N. Claridge; 3968 2nd Class Air-Mechanic V. Dagger; 4894 2nd Class Air-Mechanic H. Dodd; 5809 2nd Class Air-Mechanic F. G. Draper; 806 1st Class Air-Mechanic J. R. Eaves; 7578 2nd Class Air-Mechanic R. E. George; 7801 2nd Class Air-Mechanic A. J. Hare; 1414 1st Class Air-Mechanic J. Hogg; 5848 2nd Class Air-Mechanic W. Keefe; 7373 2nd Class Air-Mechanic R. G. Nickolls; 7350 2nd Class Air-Mechanic D. Ponting; 4475 Sergeant F. Read; 862 Corporal A. Reid; 4351 2nd Class Air-Mechanic F. Snell; 2853 1st Class Air-Mechanic T. W. Vincent; 4477 Flight-Sergeant A. Webb; 4136 1st Class Air-Mechanic S. Welch; 7870 2nd Class Air-Mechanic S. J. Wells.



# The British Air Service

"PER ARDUA AD ASTRA"

UNDER this heading are published each week the official announcements of appointments and promotions affecting the Royal Naval Air Service and the Royal Flying Corps (Military Wing) and Central Flying School. These notices are not duplicated. By way of instance, when an appointment to the Royal Naval Air Service is announced by the Admiralty it is published forthwith, but subsequently, when it appears in the LONDON GAZETTE, it is not repeated in this column.

## Royal Naval Air Service.

THE following appeared among the Admiralty announcements of the 22nd inst. :—

Temporary Sub-Lieut. (R.N.V.R.) E. G. Hopcraft entered as Probationary Flight Sub-Lieutenant (temporary), seniority of May 22nd, and appointed to "President," additional, for R.N.A.S. (commission as Temporary Sub-Lieutenant, R.N.V.R. terminated).

The following have been entered as Probationary Flight Sub-Lieutenants (temporary), seniority of June 25th, and all appointed to "President," for R.N.A.S. : C. R. Vaughan, G. W. Parker, R. B. Morrison, W. Buckley, F. H. McMaster, C. B. Ridley, C. S. Iron, C. R. W. Hodges, N. von L. Tapscott, C. R. Morrish, P. H. Mackworth, R. G. Clarke, H. L. Gaskell, K. B. Preston, D. O. Thomas and J. de C. Paynter.

Temporary commissions as Sub-Lieutenant (R.N.V.R.) have been

granted to the following Chief Petty Officers, seniority of June 20th : P. W. Hawkins (appointed to "President," for R.N.A.S.) and H. I. Eardley.

The following appeared among the Admiralty announcements of the 24th inst. :—

Flight Sub-Lieut. J. H. D. M. Campbell granted a temporary commission as Sub-Lieutenant, R.N.V.R., with seniority June 19th, and appointed to the "President," additional, for R.N.A.S., to date June 19th.

The following appeared among the Admiralty announcements of the 26th inst. :—

Temporary Sub-Lieut. (R.N.V.R.) D. S. R. Kent, entered as Temporary Flight Sub-Lieutenant, seniority of March 17th (temporary commission as Sub-Lieutenant (R.N.V.R.) terminated).



Where the Allies' aeroplanes attacked recently, Constantinople, and for which a couple of D.S.O's. have just been awarded.—Above, Santa Sofia, and below, a general view of the port.

## Royal Flying Corps (Military Wing).

THE following appeared in the *London Gazette* of the 20th inst. :—

*Squadron-Commanders, from Flight-Commanders.*—June 1st, 1916: Major R. A. Bradley, N. Staff. R. And to be Temporary Majors whilst so employed: Lieut. (Temporary Capt.) E. L. Gossage, R. A.; Second Lieut. (Temporary Capt.) P. Babington, Hamps. R. (T.F.).

*Flying Officers.*—Temporary Second Lieut. F. M. Ballard, General List; November 30th, 1915. Second Lieut. N. C. Millman, Special Reserve; May 27th, 1916. May 30th, 1916: Second Lieut. A. L. Clow, Oxf. Yeo. (T.F.); Second Lieut. R. W. Young, Special Reserve. May 31st, 1916: Lieut. G. M. V. Bidie, R. Scots., and to be seconded; Second Lieut. (on probation) A. L. M. Shepherd, K.R.Rif. C., Special Reserve and to be seconded; Second Lieut. H. H. Baron, Special Reserve; Temporary Second Lieut. G. B. A. Baker, R. Berks. R., and to be transferred to the General List; Second Lieut. (Temporary Lieut.) L. W. McArthur, H.A.C. (T.F.); Temporary Second Lieut. R. B. Fricker, D. of Corn. L.I., and to be transferred to the General List. June 1st, 1916: Temporary Lieut. A. W. Morey, R. Scots., and to be transferred to the General List; Lieut. R. L. Keller, R. War. R., Special Reserve, and to be seconded; Second Lieut. M. Allport, Special Reserve; Temporary Second Lieut. F. Nuttall, General List; Second Lieut. D. J. Macdonald, R.G.A. (T.F.), from an Assistant Equipment Officer; Second Lieut. A. H. G. Fellowes, Special Reserve. June 2nd, 1916: Capt. L. S. Charles, Worc. R., Special Res., and to be seconded; Lieut. C. G. Burge, York. and Lanc. R., from a Flying Officer (Observer); Second Lieut. (Temporary Lieut.) P. Grosset, High'and Cyclist Bn. (T.F.); Temporary Lieut. J. C. Liddle, North'd Fus., and to be transferred to the General List; Temporary Second Lieut. R. F. Sinclair, Manch. R., and to be transferred to the General List. June 3rd, 1916: Lieut. J. A. N. Ormsby, Can. Motor Machine Gun Service; Second Lieut. (on probation) V. J. Whitaker, Linc. R., Special Reserve, and to be seconded; Temporary Second Lieut. H. B. Hurst, General List; Second Lieut. J. F. Gordon, Gord. Highrs., and to be seconded.

*Supplementary to Regular Corps.*—Second Lieutenant (on probation) Eric B. P. Barrow relinquishes his commission; June 8th, 1916. Second Lieutenants (on probation) are confirmed in their rank: G. Iredell, N. C. Millman, M. Allport, H. H. Baron, R. W. Young, A. H. G. Fellowes. To be second Lieutenants (on probation); May 13th, 1916: William M. Bevan, Harry F. Wright.

The following appeared in a supplement to the *London Gazette* issued on the 21st inst. :—

*Memoranda.*—To be Temporary Second Lieutenants: Lce.-Corpl. Harold E. Goody, from R. Fus., for duty with the R.F.C.; May 27th, 1916. 1st Class Air-Mechanic Lewis S. White from R.F.C., for duty with the Military Wing of that Corps; June 3rd, 1916.

*Supplementary to Regular Corps.*—To be Second Lieutenants (on probation); May 15th, 1916: Geoffrey Gilling, John H. Inskip, Gerald V. Hirst, Francis L. Wellington, Viscount Combermere.

The following appeared in a supplement to the *London Gazette* issued on the 22nd inst. :—

*Assistant Equipment Officers.*—Second Lieut. (on probation) R. N. Rowell, Special Reserve; May 29th, 1916. Second Lieutenant (on probation) H. Gigby, Special Reserve; June 7th, 1916.

*Memoranda.*—Temporary Qr.-Mr. and Hon. Lieut. G. E. Stagg, from R.F.C., to be Temporary Lieutenant; May 8th, 1916.

Second Lieut. (on probation) A. R. Earle, S. African Aviation Corps, to be Temporary Second Lieutenant from Sept. 18th to Oct. 22nd, 1915.

Corpl. John L. Trollope, from R.E., to be Temporary Second Lieutenant for duty with the R.F.C.; June 17th, 1916 (substituted for the notification in the *Gazette* of June 17, 1916).

To be Temporary Second Lieutenants: Pte. Neil McN. Beaton, from Lond. R. (T.F.), for duty with the R.F.C.; May 13th, 1916. 2nd Class Air-Mechanic Eustace C. Fulton, from R.F.C., for duty with the Military Wing of that Corps; June 9th, 1916. Corpl. Stuart H. Gordon, from Edinburgh Academy O.T.C., for duty with the R.F.C.; June 17th, 1916.

*Supplementary to Regular Corps.*—The undermentioned to be Second Lieutenants (on probation); June 17th, 1916: J. W. Baillie, Frederick H. Godwin, Douglas S. Kennedy, Maurice H. Butler, Gerald S. McGregor, Francis O'Keefe, Harold J. Every, Arnold Edwards, Colin Elphinstone, Glenn W. Dampier, Thomas E. Gorman, Walter E. M. Walker, Henry J. Butler, Caspar Kennard, George R. Kull, Albert H. Smith, Thomas Hayes, Frank G. Garratt, Eric J. Roberts, Philip S. Butterworth, Cecil C. Morley, Hugh B. Burrell, Geoffrey A. H. Pidcock, Eric A. Clark, Leslie G. Courage, Kenneth J. Box, Donald S. Evans, Rupert G. Fordham, Alexander T. Croucher, Edward D. Clarke, Cedric J. Kennedy, Stanley Chappell, Edward V. Tatham-Davenport.

The following appeared in a supplement to the *London Gazette* issued on the 24th inst. :—

*Supplementary to Regular Corps.*—The Christian names of Second Lieut. (on probation) Herbert Clements Short are as now described, and not as in the *Gazette* of June 10th, 1916.

The following appeared in a supplement to the *London Gazette* issued on the 26th inst. :—

*Equipment Officer.*—Lieut. G. E. W. Humphery, Special Reserve, from an Assistant Equipment Officer, and to be Temporary Captain whilst so employed; June 8th, 1916.

*Memoranda.*—Pte. Beauchamp Mervyn Wainwright, from Middlesex Regt., to be Temporary Second Lieutenant for duty with the R.F.C.; April 10th, 1916.

*Supplementary to Regular Corps.*—Lieut. H. S. Coles resigns his commission; June 27th, 1916. To be Second Lieutenants (on probation); April 24th, 1916: Charles F. Blut, Frank A. Corbett, Charles N. Dore; May 22nd, 1916. Eric E. G. B. Lennard; May 23rd, 1916.

## Royal Flying Corps (Territorial Force).

THE following appeared in the *London Gazette* of the 23rd inst. :

*Hampshire Aircraft Parks.*—Lieut. W. J. Stutt relinquishes his commission, June 24th, 1916. Cuthbert A. Hudson to be Second Lieutenant; June 24th, 1916.

## THE FLYING SERVICES FUND—ADMINISTERED BY THE ROYAL AERO CLUB.

THE Flying Services Fund has been instituted by the Royal Aero Club for the benefit of officers and men of the Royal Naval Air Service and the Royal Flying Corps who are incapacitated on active service, and for the widows and dependants of those who are killed.

The Fund is intended for the benefit of all ranks, but especially for petty officers, non-commissioned officers, and men.

Forms of application for assistance can be obtained from the Royal Aero Club, 166, Piccadilly, London, W.

## Aircraft Manufacturers and Excess Profits Duty.

ON the discussion in the House of Commons on Monday, on the clause in the Finance Bill dealing with the adjustment of excess profits duty and munitions Exchequer payments in case of controlled establishments—

Mr. Joynton-Hicks pointed out that the manufacturers of aircraft had no pre-war standard of profits. During the war they had received large orders from the Government, and were putting the whole of their profits into their undertakings in order to increase their means of production. After the war those increased means of production would be of little or no value, because the exceptional demand for aircraft would have ceased, and he asked that the adjust-

Subscriptions.		£	s.	d.
Total subscriptions received to June 20th, 1916	10,738	1	8	
Collected at the Westland Aircraft Works,				
Yeovil (Thirty-seventh contribution)	...	0	16	0
D. A. Merion-Smith	...	0	10	0
G. E. Tipper	...	0	3	0
Total, June 27th, 1916	...	10,739	10	8

B. STEVENSON, Assistant Secretary.

166, Piccadilly, W.

ments made under the Munitions (Limitation of Profits) Rules, 1915, should be accepted in computing profits for the excess profits duty.

The Chancellor of the Exchequer said the Government had gone a long way towards meeting the hon. member's argument; but it would not be proper to accept for application in regard to the excess profits duty regulations which were needed in order to stimulate an additional output after the maximum profits allowed had been earned. Under the principal Act the Commissioners of Inland Revenue had power to modify the schedule if they thought such a course necessary in order to meet particular cases, and he had given a pledge that they would exercise their powers in a certain way.



## HONOURS.

### Honours for Naval Flyers.

In a supplement to the *London Gazette* issued on the 22nd inst., the following appears:—

The King has been pleased to give orders for the appointment of the undermentioned Officers to be Companions of the Distinguished Service Order:—

Commander ROBERT MARSLAND GROVES, R.N.  
(Wing-Commander, R.N.A.S.).

In recognition of his services in command of a Wing of the Royal Naval Air Service at Dunkirk. Commander Groves has by his personal skill as a pilot, and also by his untiring zeal, effected a marked advancement in the general standard of flying on active service. He has on several occasions carried out successful reconnaissances to Ostend under fire, and by his own example has proved the utility and great importance of night flying.

Captain and Brevet Major EUGENE LOUIS GERRARD (Temporary Lieutenant-Colonel), R.M. (Wing-Commander, R.N.A.S.).

In recognition of his services in command of a Wing of the R.N.A.S. in the Eastern Mediterranean. The present efficiency of this Wing is due very largely to Wing Commander Gerrard, whose personal example, and the manner in which he has encouraged the younger officers under his command, are all that can be desired.

Lieutenant DOUGLAS AUSTIN OLIVER, R.N.  
(Squadron-Commander, R.N.A.S.).

In recognition of his services on the morning of April 25th, 1916, when he pursued out to sea the enemy fleet which had bombarded Yarmouth, and flew along the line dropping bombs, being subjected to intense anti-aircraft fire.

Flight-Lieutenant KENNETH STEVENS SAVORY, R.N.A.S.

Flight Sub-Lieutenant RICHARD SEBASTIAN WILLOUGHBY DICKINSON, R.N.A.S.

In recognition of their services on the night of April 14th-15th, 1916, when they carried out a flight to Constantinople and dropped bombs upon points of military importance, returning safely to their base after a long flight in rough and stormy weather.

Flight-Lieutenant (Acting Flight-Commander)  
REDFORD HENRY MULLOCK, R.N.A.S.

In recognition of his services as a pilot at Dunkirk. This Officer has been constantly employed at Dunkirk since July, 1915, and has displayed indefatigable zeal and energy. He has on several occasions engaged hostile aeroplanes and seaplanes, and attacked submarines, and has carried out attacks on enemy air stations, and made long-distance reconnaissances.

Lieutenant JOHN HENRY DALBIAC, R.M.A.

In recognition of his services as an aeroplane observer at Dunkirk since February, 1915. During the past year Lieut. Dalbiac has been continually employed in coastal reconnaissances and fighting patrols. The Vice-Admiral commanding the Dover Patrol, in reporting on the work of the R.N.A.S. at Dunkirk, lays particular emphasis on the good work done by the observers.

The King has further been pleased to approve of the award of the Distinguished Service Cross to the undermentioned officers:—

Flight-Commander (Acting Squadron-Commander)  
FRANCIS KNOX HASKINS, R.N.

In recognition of his services as a pilot at Dunkirk since February, 1915. He has taken part in air raids on Ostend and Zeebrugge, and has been continually employed in coastal reconnaissances.

Lieutenant DOUGLAS CLAUDE STRATHERN EVILL, R.N.  
(Flight-Commander, R.N.A.S.).

In recognition of his services as a pilot at Dunkirk since February, 1915. In addition to his work as a pilot, Flight Commander Evill has shown great zeal and ability in carrying out experiments connected with signalling and spotting.

Flight-Lieutenant JOHN JOSEPH PETRE, R.N.A.S.

In recognition of his services as a pilot at Dunkirk since February, 1915. He has taken part in air raids on Ostend and Zeebrugge, during one of which he successfully engaged a hostile aeroplane of the Fokker type, and has carried out many coastal reconnaissances under shell fire.

Flight-Lieutenant VINCENT NICHOLL, R.N.A.S.

Flight-Lieutenant FREDERICK GEORGE DARBY HARDS, R.N.A.S.

In recognition of their services on the morning of April 25th, 1916, when they pursued a Zeppelin 65 miles out to sea, dived

within a few hundred feet of it, and attacked it with bombs and darts.

Flight-Lieutenant CHARLES HENRY CHICHESTER SMITH,  
R.N.A.S.

In recognition of his services on the morning of April 25th, 1916, when he pursued a Zeppelin 50 miles out to sea, and on his return journey sighted the enemy fleet accompanied by submarines, which latter he attacked and compelled to submerge.

Flight-Lieutenant (Acting Flight-Commander)  
GEORGE HENRY BEARD, R.N.A.S.

In recognition of his services as a pilot at Dunkirk since May, 1915. He has carried out frequent reconnaissances of the coast, and has continually been employed in aircraft and submarine patrols. He has twice attacked German submarines.

Flight Sub-Lieutenant HERBERT GLYNN HALL, R.N.A.S.

In recognition of his services on the morning of April 25th, 1916, when he carried out an air patrol with an observer during the attack by a raiding squadron of enemy ships on Yarmouth. Although severely wounded in the shoulder by shrapnel and weak from loss of blood, Flight Sub-Lieut. Hall succeeded in piloting the machine back to his station and landed safely.

Lieutenant CHARLES WILLIAM NUTTING, R.N.V.R.

Lieutenant EDWARD RAYMOND PEAL, R.N.V.R.

Sub-Lieutenant HORACE WILLIAM FURNIVAL, R.N.R.

In recognition of their services as aeroplane observers and continuous good work whilst attached to a Wing of the Royal Naval Air Service at Dunkirk.

Temporary Lieutenant GERALD FENWICK HASZARD, R.M.

In recognition of his services with the Royal Marine Artillery Anti-Aircraft Brigade in France. Lieut. Haszard has on many occasions shown great coolness and resource under heavy fire, and has for several months controlled his section in an advanced position with marked ability.

The following awards have also been approved:—

#### Distinguished Service Medal.

Chief Petty Officer Mechanic, 3rd Class, F. S. THATCHER.

Chief Petty Officer Mechanic, 2nd Class, J. SHIPPERBOTTOM.

The following officers have been mentioned in despatches:—

Flight-Commander (Acting Squadron-Commander) JOSEPH RUSCOMBE WADHAM SMYTH-PIGOTT, D.S.O., R.N.

Flight Sub-Lieutenant ISAAC HENRY WOLF, R.N.A.S.

### Awards to R.F.C. Officers.

In a supplement to the *London Gazette* issued on Monday morning it was announced His Majesty the King had been graciously pleased to confer the Military Cross on the undermentioned Officers, in recognition of their gallantry and devotion to duty in the field:—

Temporary Captain W. MILNE, General List, attached R.F.C.

For conspicuous gallantry and skill. When attacked by two hostile aeroplanes he drove off one, and, though slightly wounded in the face, drove the other vertically to the ground. He then at once attacked another, and drove it down, being this time shot through the hand. In spite of his wounds he landed his machine safely in his own aerodrome.

Lieutenant (Temporary Captain) A. W. H. JAMES,  
3rd Hussars and R.F.C.

For conspicuous gallantry when making a special reconnaissance. Owing to clouds, he crossed the lines at 1,500 ft., and seeing signs of movement in a particular locality, he came down to 800 ft. in order to get a better view. He re-crossed the lines at 500 ft. with very valuable information under heavy fire from rifles, machine-guns, anti-aircraft guns, and field guns. His engine and machine were badly damaged by the enemy's fire.

Temporary Lieutenant D. WILSON, General List, attached R.F.C.

For conspicuous gallantry and skill. After his machine had been damaged in a combat with an enemy machine and was difficult to control, he continued his patrol and assisted another officer to bring down an enemy machine. Later, he found another enemy machine, dived at it, and brought it down in flames within our lines.

Second Lieutenant (Temporary Captain) E. W. FORBES,  
6th Batt. R. War. Regt. (T.F.), attached R.F.C.

For conspicuous gallantry and skill. He was acting as

Observer when attacked by two enemy aeroplanes, and was wounded in the chest. On recovering from the shock, he saw that his pilot was killed. Climbing into the pilot's seat he succeeded in bringing his machine back from behind the enemy's lines and landing safely.

Second Lieutenant (Temporary Lieutenant) J. A. MANN, 5th Batt. Sco. Rif. (T.F.), attached R.F.C.

Second Lieutenant (Temporary Lieutenant) G. R. M. REID, 4th Batt. Arg. and Suth. Highrs., attached R.F.C.

For consistent gallantry and skill. In the course of seven days Second Lieutenants Mann, as pilot, and Reid, as observer, attacked no less than eight enemy aeroplanes. They drove down four, three of which were seriously damaged. The remainder were driven off, one escaping by getting into a cloud.

The undermentioned Officers have been awarded the Military Cross, and the specific acts for which the awards have been granted will be announced as soon as possible:—

Second Lieutenant D. A. L. DAVIDSON, Royal Flying Corps, Special Reserve.

Second Lieutenant (Temporary Captain) H. TOMLINSON, Royal Flying Corps, Special Reserve.

In a list of honours in another supplement to the *London Gazette* issued on the same date, there appeared the following:—

## Awarded the Military Cross.

Second Lieutenant W. D. M. BELL, Royal Flying Corps, Special Reserve.

## Air Raid Risks and Growing Crops

THE Board of Agriculture calls the attention of farmers to the possibility of loss of, or damage to, growing crops by hostile aircraft, and states that no liability can be accepted and no claim can be entertained in respect of damage unless the property has been insured under the Government scheme, particulars of which can be obtained at any post office or from any fire insurance company.

## A Princely Gift.

A MESSAGE from Singapore states that the Sultan of Johore has presented to the Imperial Government a squadron of fighting aeroplanes costing £31,500.

## Leeds to Present Aeroplane to India.

THE Leeds Chamber of Commerce is raising two thousand

## Gallant Work by the R.F.C.

IN connection with the awards of the Distinguished Conduct Medal recorded in our issue of June 8th, the following particulars of the acts of gallantry for which the decorations have been awarded are now published:—

1675 Flight-Sergeant H. G. DADLEY, Royal Flying Corps.

For consistent good work as Senior Clerk. He is cheerful and painstaking, and no hours are too long for him.

60403 Sergeant W. J. FORDHAM, R.H.A., attached 14th Anti-Aircraft Sec.

For conspicuous gallantry. When his gun had been much damaged, and he himself wounded and unable to walk, he insisted on remaining in charge of the gun till it was towed away. The whole gun detachment had been wounded.

88053 Gunner G. W. G. MARSHALL, R.H.A., attached 14th Anti-Aircraft Sec.

For conspicuous gallantry. When his section had been heavily shelled, and had suffered casualties, he acted with the greatest coolness, and on his own initiative, with the assistance of some other gunners, removed all the wounded under heavy shell fire.

1776 Flight-Sergeant (Acting S./M.) H. MCKENNA, R.F.C.

For consistent good work for over a year, frequently under difficult circumstances. He has shown great resource and skill.

254 S./M. E. PORTER, Royal Flying Corps.

For consistent good work. He has shown great zeal, and has never failed to carry out his duties successfully.

R.F.A./8358 Sergeant E. TROWBRIDGE, R.H.A., attached 20th Anti-Aircraft Bty.

For conspicuous and consistent good work, notably with anti-aircraft guns.

guineas to provide an aeroplane, bearing the city's name, which will be presented to India.

## Canadian Tribute to Raid Victims.

CANADIAN wounded soldiers have erected in Ramsgate Cemetery a stone in the shape of a maple leaf in memory of children killed in an air raid.

## French Aerial Post.

A CORRESPONDENT of the Antwerp paper *La Métropole* learns that a French aviator flew over Courtrai, and dropped bulletins giving news of the recent Russian victories, and of the number of prisoners made by the Russians. The population picked up a great number of these messages, although the Germans threatened to fine heavily anybody found in possession of them.



Alexandra Rose Day on the Aerodrome.—No spot was sacred against the invasion of the bevy of Alexandra Rose Day sellers last week, every aerodrome being invaded and a considerable amount thereby raked in to the general fund. Our photograph shows business being done somewhere within a hundred miles of the Metropolis.



## DIRIGIBLES FOR SPORT.

By SAMUEL L. COLLINS, M.Ae.S., A.M.I.A.E.

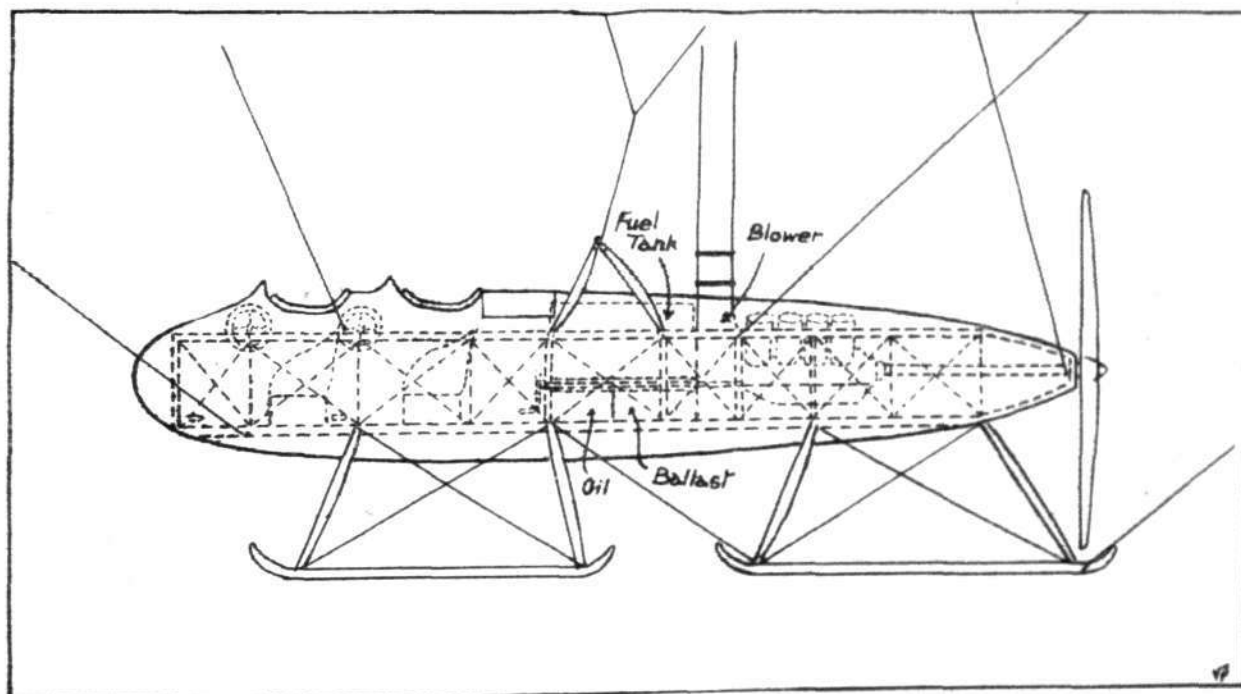
[MR. COLLINS has been personally responsible not only for the designing of dirigibles but for their construction, and is, therefore, in a position to speak with some authority on this subject.—ED.]

ALTHOUGH opinion is still very divided as to the relative merits of the various types of airships, there is no doubt that the lighter-than-air craft have proved in this war that they have a certain amount of usefulness, and that under favourable conditions, at any rate, they are reliable enough for all practical purposes. Faults have, of course, been brought to light, and as in the case of the aeroplane, and many another invention utilised for military purposes, there will continue to be development as the result of experience which should ultimately be of benefit to the rest of the world when peace returns again. Although practically nothing has been heard of it, it is an open secret that very effective work, in several directions, has been done by small and medium-size dirigibles, and to my mind this is bound to result in a very much greater amount of attention being given in the future to such craft for pleasure and utilitarian purposes.

able difficulties. In point of fact there appears to me to be no reason why suitable hangars should not be provided at the numerous aerodromes which will have to come into being sooner or later all over the country. In the same way, the question of the supply of hydrogen, although it might present some small difficulties at first, would soon be effectively dealt with once the commercial potentialities of the scheme were grasped.

The practicability, from the technical standpoint, of airships of this type is unquestionable. They possess the great advantage of simplicity in construction and control. They are very easy to handle, in fact almost as easy to handle as a motor car or a yacht, for, unlike the aeroplane, the dirigible calls for but comparatively simple aerodynamical knowledge, the question of balance, &c., being seen to, so to speak, by the dirigible itself.

For the last-mentioned reason I think they would be



A sporting two-seater dirigible, a detail view of the gondola.

"Flight" Copyright.

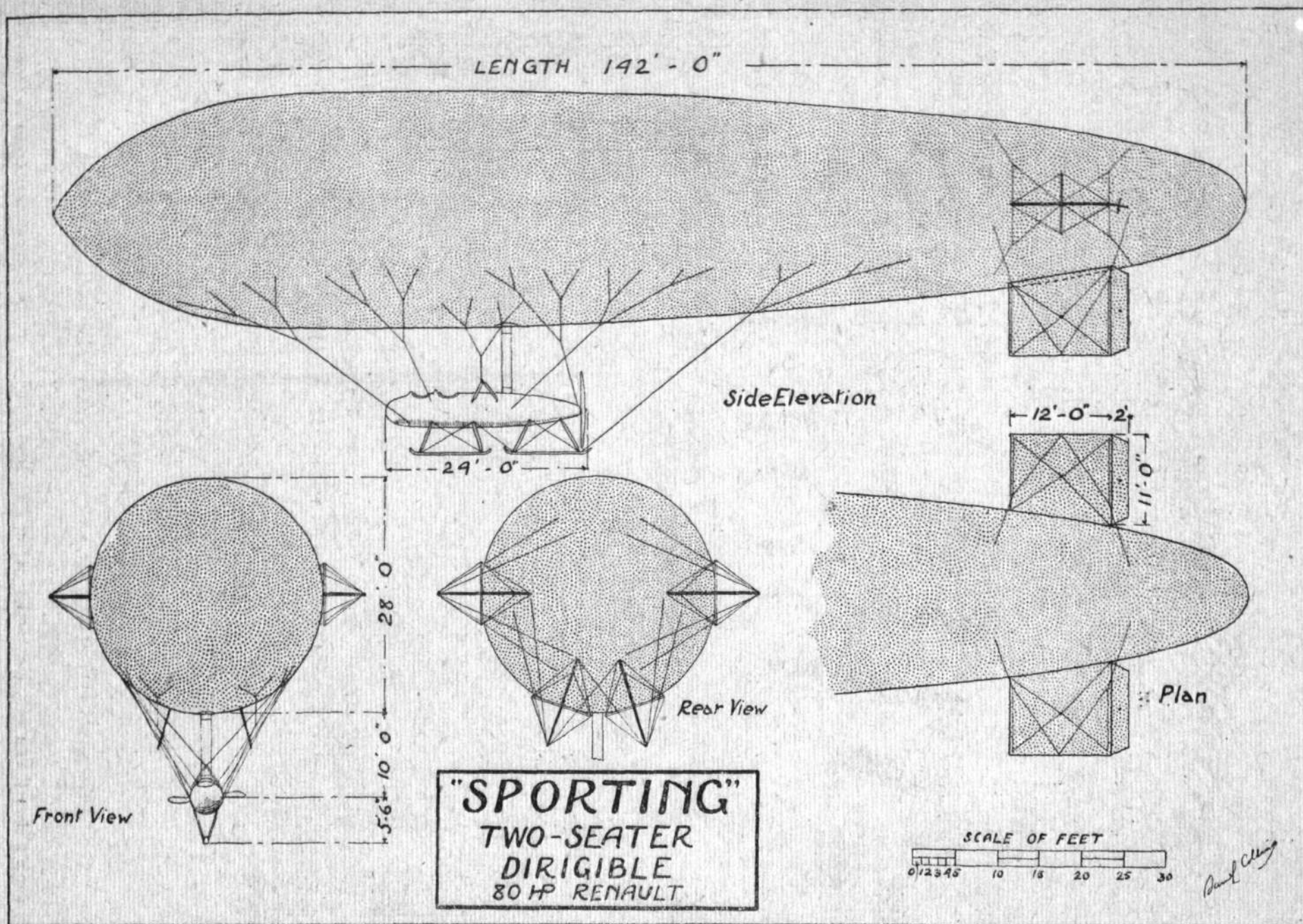
It appears to me that there are great possibilities for a small light dirigible, costing complete about £2,500 to £3,000—or even less—and so designed as to accommodate two or three persons comfortably. The idea may sound a little fantastical at first, but there is no real reason why such a craft should not become popular among the sportsmen who, for instance, used to go in for ballooning but are not attracted to the aeroplane. It would enable them to travel from place to place in comparative safety and in comfort, and they would certainly get more pleasure and enjoyment out of it than from ballooning.

In order to give some tangible idea of what such a proposition means, I have prepared the outline drawings of a vessel to meet these requirements, from which it will be seen that it is less than 150 ft. long and about 45 ft. high, so that the housing of it should not offer insuper-

found useful by flying schools for enabling prospective aeroplane pilots to get accustomed to controls, ascending, descending and turning, altitude, and other atmospheric conditions.

There also should be a good business to be done in passenger cruises at the various aerodromes, for besides being a new experience to those who have already been up in aeroplanes, there are a great many people who would not mind going up in a dirigible, but would not dream of trusting themselves in an aeroplane. Apart from this, there are also commercial possibilities in the way of exhibition work, advertising, &c., all of which could be turned to considerable profit.

Referring to the drawings, it will be seen that the shape of the body is somewhat on the lines of that known as B.F. 36, a shape which experiments, carried out at the N.P.L., have shown to be one giving excellent results as



A sporting two-seater dirigible; plan, side and end elevations to scale.

"Flight" Copyright.



regards head resistance, speed, &c. The gondola containing the pilot, passenger and power plant is also of similar shape, and has been designed much on the lines of a *nacelle* of a pusher biplane, the propeller being located at the extreme rear. Such an arrangement makes for a very simple and compact disposition of the "business" components—propeller, engine, fuel tanks, control gear, &c., although the problem of suspending the gondola from the envelope is one that requires some careful forethought in order that the stresses shall be evenly distributed and the propeller given freedom of action.

The gondola consists of a rectangular *fuselage* built up of four longitudinals, with the necessary cross members all thoroughly wire braced, the streamline shape being obtained by means of formers and stringers as in aeroplane construction. The covering could either be of thin plywood, or else sheet metal, such as aluminium. The "landing chassis" can consist of two skids connected to the gondola by two pairs of V struts each, as shown in the drawings, or a modification of this arrangement could be employed in the form of one long skid suitably attached to the gondola. The two seats are arranged in tandem fashion in the fore part of the gondola, and only the heads of the occupants project outside.

In the centre of the gondola, in the same plane as the centre of gravity, are the fuel and water ballast tanks, so placed that as the fuel is consumed and ballast used the consequent reduction of weight does not affect the balance of the dirigible. Behind the fuel tanks is the blower, supplying air to the ballonnet, and the engine—an 80 h.p. From the latter the power is transmitted to the propeller at the stern of the gondola through a propeller shaft. Provision is made for starting the engine from the rearmost or passenger's cockpit by means of the crank handle and shaft, as shown in the detail sketch of the gondola.

The control is extremely simple, consisting of a wheel located at the pilot's right hand for operating the elevators, and a foot rudder bar similar to that in use on aeroplanes. Dual control can be fitted if desired. The stabilising planes consist of four surfaces, each 120 sq. ft. area, mounted on the tail of the envelope, two mounted horizontally and two just slightly out of the vertical. In place of the latter a single vertical surface, 240 sq. ft. area, could be fitted. To the trailing edges of these surfaces are hinged the elevators and rudders, each of which has an area of 20 sq. feet.

A dirigible on these lines would have a cruising range, at full power, of about eight hours, and a calculated speed in the neighbourhood of 45-50 m.p.h.



## FROM THE BRITISH FLYING GROUNDS.

London Aerodrome, Collindale Avenue, Hendon.

**Grahame-White School.**—Straights with instructor last week: Messrs. Ballard, Bathurst, Cockelle, Duncan, Edwards, Fisher, Goodhart, Hodgkinson, Jamie, Kay, Reymer, Lyles, Mills, Mulville, Rodocanachi and Ward. Circuits with instructor: Messrs. Donald, Phillips and Welinkar. Eights with instructor: Messrs. Cooper, Forster, Parkinson and Turner.

Instructors: Messrs. Biard, Hale, Pashley, Manton, Russell, and Winter.

*Brevets* during week: Messrs. Rabourdin and Smith.

**Beatty School.**—The following pupils were out during last week: Messrs. Kay, Gliksten, Atkin, Venables, Phillips, Roberts, Murdoch, Hoskins, Whitmore, Earl, Skeet, Garlick, Edwards, McPherson, New, Jones, Elliott, Clift, White, Hick, Austen, Rudd and Curry.

The instructors were Messrs. G. W. Beatty, G. Virgilio, A. E. Mitchell and H. Fawcett, the machines in use being Beatty-Wright dual-control and single-seater machines and Caudron dual-control and single-seater tractor biplanes.

Certificates were taken by Messrs. F. W. Knox, R. A. S. Phillips, and H. E. Martin.

**Hall School.**—Pupils out last week with Chas. Bell: Messrs. Armitage, Collier, Skinner, Deane, Davis and Russell. With C. M. Hill: Messrs. Rand, Gaskell, Worswick, Dickson, Jones and Bartholomew.

Royal Aero Club certificates taken by Messrs. Gaskell, Rand and G. Bartholomew in excellent style on 70 h.p. Isaacson tractor.

**London and Provincial Aviation Co.**—Pupils rolling last week: Messrs. Mander and Egerton. Doing straights: Messrs. Evernden, Jones, Daly and Sivewright. Circuits and eights: Messrs. Dawson, Birkbeck, Whittingham and Lieut. Deacon.

Instructors: Messrs. W. T. Warren, M. G. Smiles, L. H. Brake, and W. T. Warren, jun.

Royal Aero Club certificates were taken by Lieut. G. R. A. Deacon and Mr. R. A. Birkbeck.

**Ruffy-Baumann School.**—Pupils out with instructor during week: Messrs. Carr, Fanshawe, Thomas, Smith, Fraser, Beebee and Trubridge. Straights: Messrs. Williams, Fraser, Fanshawe, Johnstone and Winter. Eights and circuits: Messrs. Winter and Johnstone.

Instructors: Edouard Baumann, Felix Ruffy, Ami Baumann, Clarence Winchester and André Thomsen.

Machines: Ruffy-Baumann tractor biplanes fitted with dual control.

Certificates taken by Lieut. Melville Johnstone and H. E. Winter.

Two new machines—one 50 h.p. and one 60 h.p.—have now been completed.

### Bournemouth School.

PUPILS rolling alone last week: Messrs. Fenn, Montgomery, Ross, J. B. Smith, Wingfield, Little, Hinchliff, Turner, Brandon, Green, Pritt, and Hammersley. Doing straights alone: Messrs. O. Wilson, H. Smith, Barlow, Daniel and Scaramanga. Half-circuits alone: Mr. J. Wilson.

Instructors: Messrs. S. Summerfield and Bryneldsen; 35, 45, and 60 h.p. Caudrons in use.

The usual exhibition flights were again carried out very successfully by Mr. S. Summerfield on Wednesday afternoon, and several passengers were carried. Mr. Bryneldsen tested several of the school machines during the week, making very good flights. Only one exhibition flight was made during the week-end, as the weather was much too windy. Several service machines again visited the aerodrome.



AIRCRAFT WORKERS AT PLAY AT HENDON AERODROME.—1. Girls starting in the egg and spoon race. 2. The sack race in full cry. 3. The start for the mile race. 4. The tug-of-war. 5. Just off for the half-mile.





It seems that Mr. Æolus Jupiter Pluvius is determined to be "up against" things aviatric as much as possible, even when our aircraft workers get together to have a little bit of well-earned fun and recreation. And he did his best—or, I should say, worst—last Saturday, on the occasion of the initial Aircraft Workers' Sports Day, which was held at Hendon Aerodrome under the auspices of the Y.M.C.A. However, his efforts met with as little success as they did when he tried to stop flying meetings, for the Spirit of Aviation is—well, full strength just now.

Although heavy rain fell almost throughout the afternoon, some 3,000 spectators witnessed the 27 events down on the programme, all of which were got through without a hitch. The quality of the sport shown was in every way excellent, and some very fine finishes were put up in one or two of the races. Mr. Welch, of Napier's won two popular victories in the half-mile and one-mile flat races in fine style, and some splendid running was shown by the winner of the ladies' 60 yards flat race, Miss White, of Darracq's, who also carried off two other prizes. Most of the events were "starred," and the winners of these gained points which counted for the Aircraft Workers' Championship Cup, so, naturally, a keen rivalry between the various firms represented was shown. The greatest number of points was gained by Napier's, who scored 20½, Darracq's being second with 10 points, and Grahame-White's third with 8½ points. Another interesting event was the Directors' and Managers' 100 yards handicap, which was won by Mr. Holden, of Grahame-White's, Mr. Voigt, of Integral Propeller's, being second, and Mr. Ritchie, of Grahame-White's, third. Whilst the various events were in progress the band of the Army Service Corps played popular selections, and once, when the rain paused in its energetic activities for a brief space of time, one of

the 80 h.p. G.-W. three-seater biplanes ascended and flew over the competitors for several minutes. The last event being finished to schedule, the various prizes were presented to the winners by Mrs. Winston Churchill, during which it was announced that the Aircraft Co. had presented a challenge trophy for the Inter-Works tug-of-war match, to be competed for every year, and in addition to which they presented a medal to each man of the winning team. A hearty vote of thanks having been accorded to Mrs. Winston Churchill, the first of the Aircraft Workers' (Aquatic?) Sports was brought to a conclusion.

The following are the results of the more important events:—

- 100 Yards.—Holden, Grahame-White, 1; Clennell, Napier, 2; Howell, Darracq, 3. Nine others ran. Won by a yard. Time, 11 secs.
- ½ Mile.—Welch, Napier, 1; Lewis, Napier, 2; Wilcox, B.T.H., 3. Won by 5 yards. Time, 3 mins. 20½ secs.
- 220 Yards.—Howell, Darracq, 1; Edwards, Grahame-White, 2; Clennell, Napier, 3. Won by 2 yards. Time, 26½ secs.
- 100 Yards Veterans.—Billets, Handley-Page, 1; James, Grahame-White, 2; Duffield, 3. Won by a foot. Time, 12½ secs.
- 1 Mile.—Welch, Napier, 1; Stanton, Napier, 2; Crabtree, Grahame-White, 3. Won by 3 yards; 80 yards between the next two. Time, 5 mins. 19½ secs.
- 60 Yards.—Ladies: Miss White, Darracq, 1.
- 2-Mile Walk.—Stevens, Napier, 1; Watts, Grahame-White, 2; Dover, Darracq, 3. Fifteen others competed. Won by 20 yards. Time, 18 mins. 20½ secs.
- 100 Yards.—Directors and Managers: Holden, Grahame-White, 1; Voigt, Integral Propeller, 2; Ritchie, Grahame-White, 3.
- ½ Mile.—Babbs, Napier, 1; Edwards, Grahame-White, 2; Luther, Aircraft Manufacturing Co., 3.
- Boys' Race.—Williams, B.T.H. Co., 1; Jennings, B.T.H. Co., 2; Saddby, Grahame-White, 3. Won by 2 yards.
- Bicycle Obstacle Race.—Woolgar, British Caudron, 1; Bass, Napier, 2; Jenkinson, Wells, 3.
- Relay Race.—Handley-Page, 1; Napier, 2; Darracq, 3.
- Obstacle Race.—Crabtree, 1; Bass, 2; Dunkley, 3.
- Tug-of-War.—Darracq beat Napier by 2 pulls to 1.



A FINISH—NAPIERS TO THE FORE.—Welch winning the mile, with Stanton second.



# ARMCHAIR REFLECTIONS

BY THE "DREAMER"



PUT two girls in the dark, and one of them is sure to exclaim "What's that?" at nothing, and the other one will quickly find a name for something which isn't there, whereby, together, they will frighten one another. Each, if alone, would stand the test well. It is just the fact that there are two of them. The first feels on her mettle to be quick to notice anything amiss, and the second feels bound to give credence to what in the other is but imagination.

It is precisely the same with regard to the many rumours for weal or woe which gain currency with regard to almost everything connected with the war, and afterwards.

Rumour is very persistent just now, with regard to the future of the Sub-Flight-Lieutenants of the R.N.A.S. As these rumours appear to emanate from those directly concerned—at any rate, I have heard them from several—perhaps the matter is just worth touching upon.

It is true that, like the girls in the foregoing parable, we are very much in the dark in the matter, but when one comes to think about it, taking into consideration the great number of men who have joined, and are joining up, the thought of what will happen when hostilities come to a close is perhaps worth thinking about.

I hope I shan't be giving away any "trade" secrets when I say that there appears to be an impression amongst "Subs"—an impression which I may say is growing in the way that all these things grow—that when the war is over, they will most of them either get turned down, or be invited to stay on at a reduced scale of remuneration.

The same matter looked at from a point of view embracing the R.F.C. assumes a different aspect. Although the number of men joining up as second lieutenants is probably greater in the military wing, they have joined up under rather different conditions.

No doubt many joined with the idea of embracing the Service as a profession, intending to continue therein after the war, but doubtless the greater number joined for the period of the war only, a position thoroughly understood by themselves and the authorities.

In the early days, when there was a call for pilots to man the Service "buses," the rush of civilian pilots from the established aerodromes was so great and so immediately responsive that, as our American cousins would have it, "you couldn't see them for dust."

I have it in my mind, reminiscent of my talks with these pilots at the time, that they were one and all giving their services, and placing their skill at the disposal of their country, simply as good patriots and because they were needed. With them all, it was but a temporary measure fulfilling the need of the occasion, and they almost one and all expected to return to the scenes of their former triumphs once their services were no longer required.

No doubt many of them have found service for their King so much to their liking, and many of them have so progressed up the ladder of promotion, that a great many who entered for the duration of the war only, will continue to serve with the colours afterwards.

With the R.N.A.S., it is somewhat different. I am inclined to think that comparatively very few joined up with the idea of service during the war only.

I may see this thing differently to others, and it is quite possible I am wrong in my views, but the two service arrangements seem to me totally dissimilar.

In the first place, the R.F.C. was getting well established before the war, whereas the R.N.A.S. as a separate service had practically only just commenced when they were called upon to show their mettle in active service, and the number of officers available was none too great. This fact appeared, it seems to me, to offer greater chances of promotion than was the case in the R.F.C., where they were already well equipped with flying officers, though not, of course, in anything like the numbers required under the stress of war.

And so, I feel convinced that by far the greater number of men joining the R.N.A.S., joined with the settled idea of embracing that service as their profession; therefore the rumours now gaining currency, are having the effect one might easily calculate they would have on these young officers, appearing, as they do, to give promise of nipping their chosen career in the bud.

I have tried, to the best of my ability, with those few who have spoken with me personally on the matter, to point out that their fears must of necessity be groundless, in view of what I believe must be the position of the R.N.A.S. from now forward.

This war has taught us many things. It has also taught other nations, neutral and otherwise, many things. It has taught the world that aviation is absolutely necessary to the conduct of warlike operations, whether they be on land or sea, and that any country ignoring the lessons now being taught, will find itself in a very unenviable position when next called upon to protect its boundaries.

Far from seeing the R.N.A.S. reduced in numbers when the war is over, I verily believe that those already joined will form but the nucleus of the seaplane service that is to be.

Second in importance only to our Navy, the Flying Services, under whatever form we may in the future know them, will require men in ever-increasing numbers, and assuredly it would be an insane policy to turn adrift men who had already gained great experience in the one and only school where such experience to be of any value could be gained—on actual active service.

Some who joined for the duration of the war only will doubtless be wishful to retire. That is as it may be. But those desirous of continuing, in accordance with their ideas when joining up, will, I feel sure, not only be allowed to, but their services will be held in such high esteem on account of their past deeds, deeds performed only under the eyes of their superior officers, and hidden from public eyes, that their expressed wish to remain will be received with prompt official approval, although possibly with the usual official deliberation.

All the same, in the meantime it might be just as well for some official source to ease their minds.



## AIR WORK IN EGYPT.

SEVERAL despatches covering operations in Egypt were issued in a supplement to the *London Gazette* on June 21st.

In Lieut.-General Sir J. G. Maxwell's despatch dated Cairo, February 16th, 1915, covering Major-General A. Wilson's despatch, there is the following:—

"The French Hydroplane Squadron and the detachment Royal Flying Corps have rendered very valuable services. The former, equipped with hydroplanes with floats, ran great risks in undertaking land reconnaissance, whilst the latter were much handicapped by inferior types of machines. Notwithstanding these drawbacks, they furnished me regularly with all information regarding the movements of the enemy."

In the despatch from Major-General A. Wilson, commanding the Suez Canal defences, dated Ismailia, February 11th, 1915, there are the following references to air work:—

"The months of November, December and January we devoted to a systematic development of the naturally strong line of defence."

"The detachment of the Royal Flying Corps was organised, staffed with observers, and equipped with accommodation for its planes."

"During the first fortnight of January . . . the country to the east of the canal within the radius of our aeroplane reconnaissances remained clear of formed bodies of hostile troops, though frequently visited by Bedouin patrols, which, in some cases, were accompanied by German officers in Arab dress."

"On January 18th, a hostile force of 8,000-10,000 was located near Bir-es-Saba by a French naval hydro-aeroplane, and on 22nd a Turkish force was reported to be at Moiya Harab, having arrived there from Gifgaffa. This was confirmed by aerial reconnaissance the next day, and about the same time reports of the presence of hostile troops at Ain Sadr were received, and our mounted troops obtained touch with hostile patrols near Bir-el-Duedar . . ."

Dealing with the enemy's attempt to cross the Canal in Feb., 1915, Major-General Wilson says:—

"Very efficient service was rendered by the detachment Royal Flying Corps, several reconnaissances over the enemy's lines being undertaken during the day."

"On February 5th our aeroplanes reported that the enemy were retiring towards Katia, while those who had been in front of No. 2 Section appeared to have concentrated about Gebel Habeita . . ."

"On the 7th, however, our aeroplanes found this camp deserted. Mabeuk was also found to have been vacated, and the nearest enemy on the northern line appeared at Bir-el-Abd."

"In conclusion, I desire to express my high appreciation of the valuable work done by the pilots and observers of the French hydro-aeroplane squadron and the detachment Royal Flying Corps in the numerous reconnaissances carried out by them previous to and during the advance of the enemy. They were constantly under shrapnel and rifle fire, and carried out their difficult and dangerous duties with courage, resourcefulness, and success."

In his second despatch, dated Ismailia, August 1st, 1915, Major-General Wilson says:—

"From information received from agents and through aerial reconnaissances, it appeared that during this month (March) the Turks had concentrated mainly at El Arish and Nekhl, while considerable bodies of the beaten troops were withdrawn to Syria, being, it was rumoured, replaced by fresh formations from the north. On March 22nd an infantry patrol moving from Kubri Post encountered a force of some 400 men north-east of that post at dawn. The enemy withdrew on being engaged by troops from the nearest posts, and a subsequent aerial reconnaissance discovered a force of some 800 infantry and 200 mounted men with guns about ten miles east of the canal. From the report furnished, it appeared that the Turks were entrenching and intended to stay, and, consequently, orders were issued . . ."

"These reports were verified later by aeroplane observation, which estimated the hostile force as some 4,000, with guns."

"On April 7th our mounted patrols from Kantara encountered a hostile force, estimated at 1,200 men, which withdrew after shots had been exchanged. On the same day an aerial reconnaissance reported considerably fewer numbers retiring through Duedar . . ."

"On April 28th, . . . later in the day an aerial recon-

naissance located a body of the enemy in bivouac near El Hawawish."

"At daylight on 29th an aeroplane found Hawawish evacuated, but later on located the hostile force moving into Mahadat from the south-west, and the cavalry were directed on that place."

Among the officers whose names are submitted as worthy of mention for their work during eight months are:—

### *Royal Flying Corps.*

Brevet Major S. D. MASSY, 29th Punjabis.  
Captain and Brevet Major H. L. REILLY, 82nd Punjabis.  
Captain G. B. RICKARDS, Special Reserve.  
Captain L. V. A. ROYLE.  
Brevet Major A. J. ROSS, R.E.  
Lieutenant D. R. TWEEDIE.

In the despatch from Sir J. G. Maxwell, dated Cairo, March 1st, 1916, it is stated:—

"Part of 30th Squadron Royal Flying Corps, under the command of Brevet Major S. D. Massy, I.A., with headquarters at Ismailia, carried out daily reconnaissances without a single important accident."

"The French Naval Seaplane detachment, with headquarters at Port Said, under the command of Capitaine de Vaisseau de l'Escaille, whose services were placed at my disposal for intelligence purposes, was continually employed in reconnoitring the Syrian and Anatolian coast from the requisitioned vessels *Raven* and *Anne*. The results of their work were invaluable. The *Anne* was torpedoed near Smyrna during an armistice while employed by the Royal Navy, but was fortunately able to reach Mudros, where she was patched up and returned to Port Said. I cannot speak too highly of the work of the seaplane detachment. Lengthy land flights are extremely dangerous, yet nothing ever stopped these gallant French aviators from any enterprise. I regret the loss of two of these planes whilst making dangerous land flights over Southern Syria."

"On December 11th . . . meanwhile air reconnaissances disclosed the presence of the enemy in some force at Ras Manaa, about thirteen miles west of Um Rakhum."

"In the meantime the enemy was concentrating in the neighbourhood of Gebel Medwa, about eight miles south-west of Matruh, and by December 24th his strength at that place was estimated from air reconnaissance and other sources to have reached about 5,000 men, of whom more than half were Mahafizia, or regular soldiers, with four guns and some machine guns, the whole under the command of Gaafer."

"On January 19th aerial reconnaissance discovered the presence of a considerable force of the enemy at Hazalin, 25 miles south-west of Matruh, the camp comprising at least 100 European and 250 Bedouin tents, including that of the Grand Senussi, which was recognised by Capt. Royle, the observer."

"On January 22nd, air reports showing that the enemy's position at Hazalin was unchanged, the force shown below set out with General Wallace in command, reaching Bir Shola (16 miles) after dark, where troops bivouacked for the night."

"The Western Frontier Force also owes much to the Royal Flying Corps, whose work was, as always, of a high order. Special mention should be made of a flight by Lieut. Van Ryneveld to Qara, by Lieut. Tipton from the Fayum to Moghara, and regular flights to Baharia. The distances covered were very great, and flights of 200 miles have become quite common."

In the list of names "Mentioned" are the following:—

### *Operations on Western Front. Royal Flying Corps.*

Brevet Major A. J. ROSS, R.E.  
Captain A. G. MOORE, Manchester Regt. (Special Reserve).  
Temporary Captain H. A. VAN RYNEVELD.  
Lieutenant (Temporary Captain in Army) R. J. TIPTON, R.F.A. (T.F.).

### *Administration in Egypt.*

Brevet Major S. D. MASSY, 29th Punjabis, attached R.F.C.

In the despatch from Sir J. G. Maxwell, dated London, April 9th, dealing with events in Egypt up to March 19th connected with the re-occupation of Sollum, is the following:—

"Just as the preparations for the advance were approaching completion, news was received that a hostile force had occupied the Baharia Oasis on February 11th. This oasis lies some 200 miles south-west of Cairo and about 100 miles from the rich and thickly-populated districts of Fayum and Minia. The strength of this

force, which was discovered by an air reconnaissance on the day of its arrival, was said to be about 500 men; it was increased on the following day to about 1,000. Further reinforcements are known to have arrived from the west, and the more southerly oases of Farafra and Dakhla had both been occupied by the 27th.

"All this time the oases were kept under constant observation by means of aeroplanes. Very long flights were necessary, and to reduce them as much as possible a system of advanced depôts in the desert was started. The credit for originating this system is due to Lieutenant (now Captain) Van Rynefeld, R.F.C., and to Mr. Jennings Bramley, of the Sudan Civil Service, and was first put into practice on the occasion of the flight to Qara mentioned in my previous despatch.

"On the following day, February 20th, the hostile forces were located by air reconnaissance at Agagia, some fourteen miles south-east of Barrani. Reports by surrendered Bedouin confirmed the accuracy of the information.

"A Yeomanry reconnaissance sent out at daylight on the 26th found that the position occupied by the enemy on the previous

evening had been vacated during the night, but aerial reconnaissance and officers' patrols discovered him in his old position near Agagia. . . . On the morning of the 14th both columns moved towards Sollum; at 9 a.m. aeroplane reconnaissance reported that the enemy was evacuating his camps. The mounted troops under General Peyton then joined General Lukin's column on the high ground, and, as the aeroplane had discovered a hostile force some twenty miles to the west, the armoured cars, under Major the Duke of Westminster, were sent on in pursuit."

In the list of names "Mentioned" are the following:—

## Royal Flying Corps.

Captain F. H. JENKINS, Special Reserve.

Captain and Brevet Major A. J. ROSS, R.E.

Captain LORD GEORGE WELLESLEY, Grenadier Guards.

Second Lieutenant E. H. COLEMAN, R.F.A. (T.F.).

Second Lieutenant F. W. STENT, Special Reserve.

Second Lieutenant M. GIROD, Cheshire Regt. Special Reserve).

(Died of wounds).

## QUESTIONS IN PARLIAMENT.

### R.F.C. Inquiry.

In the House of Commons on June 20th Mr. Billing asked the Under-Secretary of State for War (1) whether, in order to furnish the Air Inquiry with all the necessary material, he will grant a Return of all accidents, fatal or otherwise, which have occurred to officers and men of the Royal Flying Corps since the introduction of the B.E.2c type of machine, specifying in each case the type of aeroplane involved, the nature of the duty on which it was employed, the name of pilot and passenger (if any), and the official explanation of the cause of the accident; and (2) whether, in order to facilitate the inquiry into the allegations and criticisms respecting the administration and command of the Royal Flying Corps, the War Office will facilitate the disclosure of all documents pertinent to the inquiry which may be called for to corroborate testimony?

Mr. Tennant: The War Office is prepared to furnish to the Committee of Inquiry any information of the nature suggested for which the Committee may ask.

Mr. Billing asked the Parliamentary Representative of the Air Board whether, in order that the new Air Board may derive every possible advantage from the evidence given and the conclusions based on such evidence at the inquiry into the administration and command of the Royal Flying Corps, a representative of the Board will be instructed to attend the sittings of the Committee?

Major Baird: Arrangements have been made whereby the Air Board is supplied with a transcript of the shorthand note of the evidence given before the Committee of Inquiry on the administration and command of the Royal Flying Corps.

### The Supply of Dope.

ON June 21st Captain Bennett-Goldney asked the Under-Secretary of State for War whether the War Office or the Royal Aircraft Factory made considerable quantities of a dope known as D.94, and sold such dope to private manufacturers of aeroplanes;

whether such dope is poisonous and injurious to the user; whether the War Office or Royal Aircraft Factory issued instructions to manufacturers of aeroplanes practically compelling them to use dopes of Royal Aircraft Factory manufacture; whether any manufacturers of aeroplanes protested against the use of such dopes as causing illness and, in some cases, death of the women using them; whether such dope proved less efficient than the non-poisonous dope obtainable in the open market; and whether the War Office or the Royal Aircraft Factory are still endeavouring to sell dopes to aeroplane manufacturers?

Mr. Tennant: At the end of 1915 competitive tenders were invited from all trade dope manufacturers for the supply of 18,000 gallons of dope to Royal Aircraft Factory formula D.94, and as a result an order was placed for 18,000 gallons. This dope was intended for sale to trade contractors for aeroplanes. D.94 dope contains a smaller percentage of the poisonous ingredient tetrachlorethane than two other of the principal trade dopes. As experience has shown that the dope and varnish used in the past has not proved satisfactory under service conditions, it was decided in October, 1915, to provide for the compulsory use in all new Army aeroplane contracts of dope 94 and varnish V.114, manufactured to Royal Aircraft Factory specification and under Royal Aircraft Factory supervision. Contractors were, however, allowed on existing orders to continue the use of the dopes they were then employing. There is nothing to show that the dope to Royal Aircraft Factory specifications causes illness to a greater degree than other dopes, and its small percentage of tetrachlorethane renders it less liable to do so. The answer to the fifth part of the question is in the negative. Analytical tests are now being carried out by the Aeronautical Inspection Department, and trade contractors are allowed to use any dope which proves satisfactory under these tests.

## PERSONALS.

UNDER the above heading will be published weekly particulars of a personal character relating to those who have fallen or have been wounded in the country's service, announcements of marriages and other items concerning members of the Flying Services and others well known in the world of aviation. We shall be pleased to receive for publication properly authenticated particulars suitable for this column.

### Casualties.

Second Lieutenant JOHN GIBSON, Devonshire Regiment, attached to the Flying Corps, was accidentally killed while flying on June 19th. He was the only son of the late Mr. George Frederick Gibson, of Newcastle-on-Tyne, and joined the Devon Cyclists, afterwards obtaining a commission in the Motor Transport. Later, he transferred to the Royal Flying Corps.

### Wounded.

Second Lieutenant LORD DOUNE, who is reported as wounded, is the eldest son of the Earl of Moray, and is 23. He received his commission in the Scottish Horse Yeomanry in 1914. Last year he joined the Royal Flying Corps, and he has since been acting as a Flying Officer at the Front.

Flight-Commander HENRY MEYRICK CAVE-BROWN-CAVE, who has been slightly injured, is the second son of Sir Thomas Cave-Brown-Cave, C.B., formerly Deputy Accountant-General of the Army, who received a knighthood five years ago. He was Engineer-Lieutenant in the Royal Navy before he took up flying. His elder

brother, Thomas Reginald Cave-Brown-Cave, is a Squadron-Commander in the Royal Naval Air Service.

### Items.

Much sympathy will be extended to LADY LLANGATTOCK in the loss of her son, the Hon. HENRY ALLEN ROLLS, heir presumptive to the title, who died on the 26th inst. at Bexhill-on-Sea, aged 44 years. Mr. Rolls was the second son of the first Lord Llangatock, his younger brother being the Hon. Charles Rolls, the famous airman and motoring pioneer, who was killed in a flying accident in July, 1910. There is now no heir to the title.

Lieutenant TENNANT left Bromley Cottage Hospital last week, and has gone to his country house in Kent. After his flying accident he has made a wonderful recovery, though his foot is still in plaster-of-paris, and he will still be visited by a London specialist.

The will of Lieutenant-Colonel DONALD SWAIN LEWIS, D.S.O., R.F.C., aged 30, of Farnborough, who was killed in France while flying, has been proved at £856.



## THE R.F.C. INQUIRY.

THE Judicial Committee of Inquiry into the administration and command of the R.F.C., resumed its sittings at Westminster Hall on June 21st, Mr. Justice Bailhache again presiding.

Mr. William Joseph Rusdell, an inventor, of Wolverhampton, said that last year he saw the Assistant Director of Military Aeronautics, and put before him certain ideas regarding a helicopter. It was suggested to him that he should submit specifications. Subsequently he was told that he must get a machine made by private enterprise before it could be considered, and he received an offer for a finished article that would fulfil certain conditions. That seemed to him a very unsatisfactory state of things. He thought he should have been given an interview with a member of the Royal Aircraft Factory. He did not carry the matter further, as he was disgusted.

Mr. C. Grey, editor of the *Aeroplane*, said that he had made certain criticisms in his paper about the Air Service. His chief criticism was that those in authority in the Royal Flying Corps—he could not say precisely who, or in what department—had not from the beginning handled the supply of materials—including engines—in the manner which was best calculated to give our flying officers the best machines available at any one period. If the machines now in use in France had been in use during the past winter, there was every reason to believe that our casualties would have been considerably fewer. He believed that it was possible, not merely to have had the aeroplanes now in use, but better aeroplanes, or at any rate aeroplanes more effective as fighting machines and scouts. It was generally understood that the Royal Aircraft Factory was directly or indirectly responsible for the type of machines used by the Royal Flying Corps. The first machine of any note produced by the Royal Aircraft Factory was the original biplane B.E. 2, invented by Mr. de Havilland. In 1912 this was by far the best aeroplane in this country. On account of its excellence it was ordered in 1913-14 in considerable quantities, and it certainly did very good work. The chief criticism against it was that the lateral control was effected by warping the wings. That this criticism was sound had been proved by the fact that that system had since been abandoned. Yet a large number of these machines were ordered. From the autumn of 1912, when there was a military aeroplane competition on Salisbury Plain, until the outbreak of war, there was practically no incentive to British aeroplane designers to improve designs on their own account. But for the support given to the aircraft industry by the Admiralty, there was no doubt that several firms who had since done good service to the State would have expired just as other firms had. It would be difficult to prove that any real encouragement was given by the War Office.

Criticising various details in the designs of the aeroplanes produced by the R.A.F. from 1912, the witness, in referring to one which met with an accident through the breaking of a steel rudder post, said that ordinary common sense would have prevented the use of such a tube.

Mr. Butcher, K.C.: Common sense won't carry you very far without science.

Mr. Grey: Common sense has often carried us further in aeronautics than scientific knowledge. It was reasonable to expect, he added, that in endeavouring to improve machines there would be failures.

Mr. Grey mentioned one machine in the drawings of which 250 alterations had been made since 1914. This had resulted in a great deal of delay in their production. Many of these alterations were due to sheer bad drawing and office management and errors in the original drawings—errors which ought not to have been made. Delay was also caused by a good deal of unnecessary complexity in design. There seemed, further, to have been a great deal of material wasted by insistence upon too close limits of variation, especially in woodwork.

The machines which went out with the R.F.C. at the beginning of the war were:

The old B.E. 2 C's.

Some B.E. 2 B's (70 h.p. Renault).

Blériot monoplanes (80 h.p. Gnomes).

Henry Farman (80 h.p. Gnomes).

Maurice Farman (70 h.p. Renault).

A few Bristol Scouts (80 h.p. Gnomes).

Some 80 h.p. Avro biplanes (2-seaters).

At that period the 80 h.p. Gnome engines did not give, on the propeller, more than 65 h.p., as against the full 70 of the Renault. Of all these machines the Avro "stood up to its work" on active service quite well, and, this considered, one would expect that the authorities would have had a number of machines built by the Avro Company.

Mr. Grey said his chief criticism was, that private firms had not been encouraged as they should have been encouraged. The Avro people were particularly a case in point. They were not encouraged

early in the war, though they had produced a machine which had made good on active service. They were not encouraged to produce anything better.

The B.E. 2 C had been ordered in quite large quantities from firms all over the country. He had it on the authority of one of the best and most successful aeroplane constructors that whereas any fairly experienced aeroplane firm could produce a war-aeroplane of the ordinary type on conventional lines in six or eight weeks, the B.E. 2 C took nearly twelve weeks to produce.

There had been six months' wasted work over the R.E. 5 and the R.E. 7 machines, fitted with 120 h.p. Beardmore engines. These machines were never liked by the flying officers, mainly for the reason that it was impossible to land them in a small area, and their ultimate fate was the scrap heap. Another machine, the S.E. 4, was considered by pilots to be dangerous; the whole series was eventually scrapped.

Mr. Bright: Do you know that the S.E. 4 holds the record, and that in 1914 with a 160 h.p. Gnome engine it did 135 miles an hour?

Mr. Grey repeated that the series was scrapped. His criticism was that the machines should not have been made in quantities before the first of the type had actually made good on service. It was a waste of time and of money. In the case of the 100-h.p. engine designed by the Royal Aircraft Factory, between the first batch of drawings sent out and the final settling down with the design something like 600 alterations in the drawings were made. When the engines began to be delivered they by no means distinguished themselves by their reliability, and gave a great deal of trouble. There was constant complaint about the cylinders, which required to be renewed. He had never come across anyone who was really enthusiastic about the R.A.F. engine.

The witness added that the general opinion seemed to be that the German aeroplane engines were extraordinarily reliable, and there did not seem to be any sufficient reason why ours should not be equally reliable.

Mr. C. Bright: Have you any evidence that any German machine actually goes at a higher speed and is a better climber than the B.E. 2 C?

Mr. Grey: I cannot for obvious reasons produce evidence, but the information may be obtained from any officer of the Flying Corps who has had experience over the lines.

Mr. Grey continued that at the middle of last year various aeroplanes built by trade firms put up performances in advance of what had been achieved previously. The first of these was the Sopwith biplane, commonly known as the "1½-strutter." This machine, with an 80 h.p. engine, beat the British height record at Hendon on June 6th in a climb exceeding 20,000 ft. The speed of it, too, was better than anything except a purely racing machine. It was improved soon afterwards, and performed with success at Brooklands.

Towards the end of last year a similar machine was produced with a 110 h.p. engine. Its speed was over 100 miles an hour. It was only in the last eight weeks that these machines had been ordered; and, in fact, the French Government ordered samples of the machine before the British Government.

In July last year Mr. de Havilland produced a single-seater scout with the engine—a 100 h.p. Gnome—behind. That first went to the front on August 15th last. Unfortunately that machine was shot down by the Germans almost the first day it arrived. Orders were placed for the manufacture of more machines of this type fairly soon after the disaster, and they had been in process of delivery for some time. That was an example—a solitary one, almost—of what could be done if things were properly pushed. He also mentioned a machine by Mr. Pemberton Billing, of which, he said, advantage was not taken by the War Office. The Admiralty ordered some.

Sir Horace Smith-Dorrien: Have you any reason to think that this was brought to the notice of the Army authorities?—I have not the faintest idea.

The Chairman drew Mr. Grey's attention to the *Aeroplane* of March 29th, in which the phrase occurred:—"We have lost man after man through engine failure over the German lines and through inability of our engines to lift our machines out of the range of the German guns." "Have you any evidence of that?" he asked.

Mr. Grey: I have no evidence at all except the casualty lists of that period as compared with the casualty lists to-day. To-day we have more flying men, and more hours of daylight in which flying is done, and the casualties are certainly not greater than they were at that time.

The Chairman: Surely that is a *non sequitur*?

Mr. Grey replied that it was common talk among flying officers.

Mr. Bright pointed out that tests made with captured German machines showed that they were not superior to the British machines.

Mr. Grey said he was surprised to hear it. He should like to go up with Mr. Bright in one of the captured machines.

Mr. Bright: So you shall. I think we can arrange it.

General Henderson asked whether he might take it that the charges against the Royal Flying Corps, other than those now made by the witness, were dropped?

No answer was given to this question, and the Chairman remarked that the charges did not seem to be persisted in.

General Henderson: You said that the R.A.F. was directly or indirectly responsible for the choice of aeroplanes used by the Flying Corps. Have you got evidence of that, or were you expressing your own opinion?

Mr. Grey: Indirectly, in the sense that whoever selects the aeroplanes for the R.F.C. has very great faith in the capabilities of the Royal Aircraft Factory.

General Henderson: Have you any evidence of any designs being submitted to the Royal Aircraft Factory?—Personally I have no knowledge, but it is an accepted belief in the trade.

Mr. Grey admitted that he had not mentioned that the defective rudder post of the B.E.4 had been found to have been filed.

Have you any evidence that the B.E.8 is a bad machine, and that the pilots hold that opinion?—I adhere to that statement from the fact they were not sent abroad on active service, which appears to indicate that that was the opinion of the pilots. I have also been told of this by pilots who have flown these machines, but I cannot give the names.

General Henderson: That is the worst of it. Nearly everything that is brought before the Committee is gossip.

Mr. Grey: Shall I be allowed to approach the officers of the R.F.C.

General Henderson: There are many officers now in this country, and I have no objection to their being called.

Questioned about the engine designed by the R.A.F., Mr. Grey admitted that he had only seen the outside of the engine in an aeroplane.

General Henderson: Then your evidence is all hearsay?—All evidence must be hearsay.

General Henderson observed that it would be absolutely denied that the Royal Aircraft Factory engine was unreliable as compared with other engines. Mr. Grey agreed that at the time the Billing Scout machine was produced Mr. Pemberton Billing's company was designing for the Admiralty and not for the War Office. He thought this machine might have been tried by the Royal Flying Corps.

General Henderson: The suggestion all through is that there were machines waiting for us—the best in the world—and that we preferred wilfully to buy others?—The suggestion is that purchases of these machines had not been sufficiently accelerated. They might just as well have been ordered earlier.

You said that pilots had been lost through the inability of the engines to lift the aeroplanes out of the range of the German guns?—The men went out in a strong wind and were unable to get back.

Was it engine failure that prevented these men from coming back?—I do not know.

What is the ordinary height of observation?—About 10,000 ft. on clear days.

Can you do any gun-spotting at that range?—No.

Then some one has to come within the range of gun fire?—Yes.

The point is this—the statement would lead any ordinary person to believe that we had sent out pilots with bad engines, and in consequence had to fly so low that they were under fire all the time. Do you know the range of an anti-aircraft gun?—I estimate that the bursting height is anything up to 20,000 ft.

You spoke of the inability of engines to lift aeroplanes out of gun-fire range. Do you think that is a fair statement of the case, when you say that they are within range at from 14,000 to 20,000 ft.—how are we going to do any work at the front at that height?—No, you cannot.

The inquiry was resumed the next morning, Mr. Grey being further cross-examined.

Replying to Mr. Shortt, Mr. Grey agreed that he had made serious charges against the higher command of the Flying Corps on evidence which, he said, had been given him by men in the corps. Being under military discipline, he did not think any of them would come forward to give evidence.

Mr. Shortt: If conditions in the Flying Corps are so bad as you say they are, don't you think you could get one or two of your informants, for the sake of the corps, to come forward and at the risk of their careers give evidence before this committee?—I don't.

There may be some who are anxious to put things right?—There may be.

Have you tried to find any?—Certainly not. I don't think it is a fair question to ask.

Mr. Bright: I think you have done a certain amount of flying yourself?—Mr. Grey: I have not done any more than I could help.

The attention of Mr. Grey was directed to an article in his paper criticising the darkening of towns, and suggesting that the authorities should dazzle the enemy with as much light as possible.

Mr. Bright asked Mr. Grey if his suggestion could be made effective except by making the whole island a blaze of light.

Mr. Grey replied that in the case of London it could not be hid if every light was put out, unless it was hid in a fog.

Small airships have flown over London at night time to settle what is the right course to take? Do you really think that the City of London would be plunged into darkness, with an unfortunate increase of accidents, if it were not the real solution of the problem?—Well that is a question upon which there are varying points of view.

People who have the opportunities of making practical experiments ought to be able to give a reliable opinion on the subject?—You may say that would be the better way because it would be too expensive to do it the other way.

Mr. Butcher: Have you ever flown over London at night?—No, thank you.

Mr. Grey agreed that the darkening of London might hide certain localities from the enemy aircraft, but there could be no doubt they knew when they were over London.

Captain Bennett-Goldney, M.P., was the next witness. He said that he had taken a deep interest in aviation in England, France, and Germany since 1912. He had attended manoeuvres in Germany and France. With regard to the Kent air raids, he had been an eye-witness of more than one lamentable breakdown in our efficiency. Pilots, he alleged, had been sent to France without experience of the machines provided for them, and a sufficiency of fully-trained pilots was not provided for new types. Partly trained and inexperienced pilots had been sent to France with new machines. Out of the single squadron of twelve, five were broken on arrival, and several pilots were killed within a short time of reaching France. Machines had been sent to the front without satisfactory tests. Pilots had been ordered to fly on long reconnaissances in slower machines than those of the enemy scouts, to the danger of their lives, and in some cases they were sent up without compasses and without suitable maps. The majority of the altimeters supplied to our pilots at the front were inefficient, bursting at altitudes of over 10,000 ft., notwithstanding the fact that effective altimeters were obtainable.

The Director of Military Aeronautics had turned down the manufacture of airships in 1912. A serious mistake was made in the non-purchase (under proper tests) of more engines in the United States. The Royal Aircraft Factory was no longer a school of research and experiment, but a large manufactory competing unfairly with private enterprise, with which an attempt was made to create a virtual monopoly.

Incidentally, Captain Goldney said he considered that a grave error had been made "by the D.M.A. in issuing orders for officers to be instructed (as he heard from an officer in France) that it might prejudice their advancement if they supplied any information to members of Parliament."

Later, General Sir David Henderson, head of the Royal Flying Corps, observed that he knew nothing about such an order.

Replying to questions, Captain Goldney said that two machines came down in Kent recently, and had not got compasses. He did not mean that pilots were definitely told to fly without compasses or maps.

Sir H. Smith Dorrien suggested that there might be cases where the pilot carelessly forgot his compass, or other reasons to account for it.

"These generalities are neither convincing nor helpful," said the Chairman. "It is the particulars we want."

Questioned about his allegation that insufficiently trained observers were employed in France without having been sent to England for training, Capt. Goldney replied, "I hear it from many, many officers, and they don't think it is a good thing."

The Chairman: Obviously it is not a good thing if it is true, but how are we to ascertain it?

Capt. Goldney: Would the Committee like me to ask observers or pilots to come? If they did, I presume their careers would not suffer in any way?

The Chairman: Certainly it would be a monstrous thing if, as a result of giving evidence, they did suffer.

The Chairman asked Sir David Henderson if they would suffer.

Sir David: They would not suffer. It is rather insulting to say that they would. If I am given the names I will see that they come.

Capt. Goldney: It may be insulting, but I do say that it is the feeling.

The Chairman said the Committee were very anxious that Captain Goldney should give them the names of any pilots or observers who would elaborate witness's points and give precision to them.

Captain Goldney said he would try to comply with that desire, and he would take the assurance that he knew those pilots and observers would be so glad to have.



Sir D. Henderson: Although I gave an assurance I cannot answer for the view that their brother officers may take.

Sir David Henderson said that the totally preposterous charge against himself that he was "against the building of airships" was based on a report on the building of airships for the Navy. Did Captain Bennett-Goldney think that, in order to get a monopoly for the Royal Aircraft Factory, he had deliberately avoided giving his officers the best possible machines? None of the machines now being used were offered months ago and were turned down. The improvements mentioned by Captain Bennett-Goldney were said to date from January. The Royal Flying Corps only became responsible in February.

Mr. Pemberton Billing, M.P., was then called, and brought with him to the witness chair a large box containing books and documents. He obtained permission to have the assistance of counsel in an advisory capacity.

Outlining his indictment, Mr. Billing said: I have endeavoured to include all the charges I have made. My statement comes under the following headings:

1. Inter-departmental and inter-Service intrigue.
2. A system of promotion, unsystematised, unsound and irregular.
3. Wasteful expense in the training of pilots under a system incomplete and unnecessarily dangerous.
4. Failure to select the best available machines.
5. The employment as fighting machines of aeroplanes dangerous from being either faulty in construction, faulty in design, defectively armed, and, therefore, outclassed by the enemy.
6. The employment, under active service conditions of incompletely trained men, more particularly on machines of a type with which they were entirely unfamiliar.
7. Orders to fly at night without the provision of properly lighted landing places, and in spite of ground mists, fogs, and objections by squadron commanders or station commanders; the consequent waste of valuable lives; the lack of intelligent direction in this connection, the lack of proper control of the inspection department as evidenced by the alleged misappropriation of public money.

As to the R.A.F., his charges were:

Wasteful expenditure and incompetence.

Establishment charges out of all proportion to output; as a result of the factory's recommendations of certain types of machines, millions had been wastefully expended by the Royal Flying Corps.

Failure to design the best type of machine for active service conditions.

Failure to design a reliable engine.

Tactless and unfair treatment of private firms both in regard to orders and design.

The want of experience and control in the drawing office, resulting in repeated alterations in designs leading to a great waste of money and delay, not only in the factory itself, but more particularly in the case of the firms affected.

Mr. Billing said it was difficult to disguise from his mind that his principal charge was criminal negligence tantamount to murder, and he would deal with it first.

The Chairman: What do you propose to do about your charges in the House of Commons?—I propose to make a complete inquiry in each case. Presumably, if I can prove one case of criminal negligence it will be sufficient to justify the charge I make. I do not know whether you accept that view?

We wish you to deal with the murder charges, or, as I prefer to call them, the charges of negligence. The most convenient way is for you to give the names of the persons who suffered by accident, and any evidence, by letter or otherwise, in support of the particular cases.

Mr. Billing said that all the evidence of what actually happened was in the hands of the War Office, and the Under-Secretary had consented that this Committee should have full access to the documents. If he gave the name of a pilot and of the machine, and the date, and asked the Committee to inquire into the details of his death, he was not asking too much. He suggested that the Committee should use the opportunity to get the evidence which exists in the archives of the War Office.

The Chairman: You deal with your evidence; we will deal with ours. Will you give us the data on which you made your statement in the House of Commons? That is all we ask for now.—I will read a few letters which will give you an idea of the type of information that reaches me.

The letters he had received he had divided under three heads—those from fairly senior commands in the Flying Corps; colonels and others in the Army generally—men of undoubted position; gossip and anonymous letters. He had selected letters from 2,000.

Mr. Billing read a letter dated March 29th, 1916, which ran: "Two of my sons are in the R.F.C., and another is a captain in another regiment. I do not want their careers blasted, as they would be if you divulged my name. . . . Mr. Tennant is reported to have said that no officer had to go up against his wish,

and it was left to his discretion, but he is misinformed. Major — received an order from the War Office about six weeks ago to send an airman up, as they suspected Zeppelins. He telephoned back that it would be suicidal for anyone to go up. The War Office phoned back, and insisted that someone must go up. The major then said he would go up himself, although he knew he was going to his death. It was very dark and he ran into a tree, his petrol tank burst, and he was burned to death, but he lived long enough to say that he never expected to come down."

Another letter ran: "As soon as the men get their wings they are sent out. Such is the statement of one who knows. Their experience is often of the scantiest, and before they feel at home on the machines they are sent to meet the Germans on quite a different kind of flier."

Mr. Butcher: Now you have read the letters we want to know the responsibility and character of the men who wrote them. They won't come here, and it is not too much to ask what their responsibility is.

Mr. Billing said he would look the matter up. He added that he could submit 150 cases, and he would ask the Committee to call for the reports which were at the War Office.

The Chairman: To-morrow morning, Mr. Billing, we will take specific instances, and we want you to give us the details and evidence in reference to each. If I may give you a hint by an old advocate, it is a great thing to make a good impression on the Court at the start.

At the resumption of the inquiry on the following morning, Mr. Pemberton Billing, M.P., continued his evidence. There was a much larger attendance of the public than usual.

On taking his seat at the witness table, Mr. Billing suggested that some method should be adopted to secure a declaration from those who attended as to who and what they are. We are living in the midst of spies, he said, and it is quite possible that some remark of a witness, or of a member of the Committee, might fall on receptive ears.

The Chairman (Mr. Justice Bailhache) replied that that was one of the difficulties attendant on a public inquiry, and they must run that risk for the present.

Mr. Billing then dealt with "Case No. 11." His statement in the House of Commons was, he said, that the machine caught fire in the air with an experimental R.A.F. engine. The bombs on board burst, and the pilot was burnt to death in the air. The accident happened on November 5th, 1914. The officer was E. T. Busk, and the fatality happened in Farnborough. The machine employed was a B.E. 2.

Mr. Billing read a letter from the officer's father in which he said that his son was the designer of the R.A.F. aeroplane B.E. 2 C, the first inherently stable machine. "He never ceased to urge the necessity for swift aeroplanes. He designed the B.E. 2 C when he was twenty-six years of age; in this machine stability, and not swiftness, was the object. Had he lived he would not have rested until aeroplanes had attained a greater velocity, which he considered essential in flying. His career was cut short, and undoubtedly the progress of aviation has suffered in consequence." The letter went on to refer to a younger son lost in Gallipoli. "Owing to his slow machine my son had no chance of getting away, and it is believed was killed. I am told that his squadron was practically wiped out. I was glad when I read that you considered many of our aviators had been murdered, because that is what I think happened to this gallant young son of mine who has been murdered by Government methods."

General Sir David Henderson said that this was a Naval Air Service case. No R.A.F. machines or pilots were sent to Gallipoli.

Witness then dealt with the case of Capt. W. Warlow, lost in the Channel on December 30th, 1914. This officer flew home on leave, and his information was that the machine was worn out and not considered of any further use for active service in France.

Mr. Balfour Browne: A machine might be unfit for service in France, and yet be quite capable of flying over the Channel.

Mr. Billing replied that if a machine was unfit to fly in France, even behind the enemy line, it was terrible to think that an officer was either ordered or even allowed—which reflected still more to the discredit of the command—to fly across the Channel with the resulting loss of his life.

General Smith-Dorrien: Might not the machine have been returned home because, owing to improvements, it was obsolete for the front, although good enough for use at home?

Mr. Butcher: Have you any *prima facie* evidence to show that this machine was in fact worn out?

Mr. Billing said that when the Committee got the details officially they would be able to form an opinion on the point. The evidence he offered was the result of conversations among officers and those who knew the details, and the general opinion was that the accident was due to the cause he had mentioned.

Mr. Billing referred to the case of a Blériot, the wings of which folded up in the air.

The Chairman asked what evidence he had.

Mr. Billing replied that it was based on information received from officers and others. "I am very much afraid," he added, "that in the majority of these cases I shall have to refrain from giving any information which may lead to it being traced to any individual."

"How was it ascertained that the wings had folded up?" urged the Chairman.

Mr. Billing: During a discussion, someone who actually saw the accident said so.

Among other cases Mr. Billing referred to that of Cap. Roche on January 21st, 1915, whose death was stated to have been caused by defective bombs which blew up on landing. He instanced another case in which a pilot, flying a B.E. 2 C machine, was shot down over the enemy's lines. He suggested that this type of machine could not climb rapidly. Even at the moment this machine could not mount more than 360 ft. a minute, whereas there were machines capable of rising 1,500 and 1,600 ft. per min. His information in this case was based on a newspaper report. Mr. Billing said he would like members of the Committee to see a trial between B.E. machines, with their slow climb, and other speedy mounting machines. The death of Lieut. T. Dalton Downing was due to "the usual B.E. 2 C spiral" and nose dive of 300 ft. at the Central Flying School on February 25th, 1915.

Mr. Bright pointed out that B.E. 2 C machine was largely used at the flying schools.

Mr. Billing agreed, but said it was a very grave error of judgment. It was a very stable machine, and the pilot was apt to become overconfident, and if a pilot was trained in a B.E. 2 C he was ruined for any other type of machine.

On August 24th, 1915, Captain G. W. Mapplebeck was killed while testing a Morane machine, although this type of machine had six months previously been condemned by the French Government as unsuitable and unsafe.

General Smith-Dorrien observed that a type might pass out of date because it was of no use for fighting, not because it was unsafe.

Mr. Billing added that the safety belt was improperly fastened.

The Chairman pointed out that these were the kind of specific complaints of negligence that the Committee wanted.

Mr. Billing mentioned the names of other officers who had met their deaths, and adopted Mr. Balfour Browne's suggestion that in the case of Second Lieutenant W. Polehampton, who was killed in France as a result of a side slip when getting off the ground, his charge of negligence was the use of the B.E. 2 C machine.

The case of Lieutenant Croft, killed as the result of engine failure causing a side slip, was next referred to. The machine, he believed, was a B.E. 2.

A further case was that of Major Unwin. Mr. Billing said the officer had no experience. The War Office telephoned for two airmen to go up, and a reply was sent that the ground was not suitably lighted, that the men were not experienced, that there was a thick ground fog, and that it was not safe. The greatest fear any flying man ever had is that he will lose his nerve, and get what is colloquially known as "cold feet." The result is that, if a pilot is ever ordered to do anything, no matter how foolhardy, how ill-advised, how dangerous, or how unnecessary, he will generally prefer to take chances and attempt it than to be known as a man with "cold feet." He believed there was a Zeppelin raid, and Major Unwin, rather than send up two men, went up himself, crashed into a tree, and was killed.

The Chairman: Do you suggest that this officer was ordered to go up despite his remonstrance?—That is the suggestion I make.

Mr. Billing said that the type of machine was quite unsuitable for attacking Zeppelins. He knew of cases where men had been sent up with nothing but a Winchester repeating rifle across their knees. This was done merely to stop popular clamour.

In reply to Mr. Butcher, witness said that an officer was ordered to go up despite atmospheric conditions. He confessed that he himself would be frightened to fly at night without having been trained.

Mr. Butcher doubted whether such peremptory orders were issued, giving flight commanders no discretion at all.

Mr. Billing said his experience was that an order was an order, and must be obeyed. On the occasion referred to many pilots were sent up, 75 per cent. of whom were killed, many machines smashed, and no useful military purpose accomplished or attempted.

Mr. Billing went on to say that the Fokker was a much over-rated machine, but its performance was wonderful in comparison to the machine we put in the field against it. Our pilots were hopelessly outclassed, and in the first thirteen days we suffered twelve casualties. His point was that there had been a lack of intelligent foresight on the part of the Royal Flying Corps, that they had standardised a type which was inefficient, and perpetuating a type

of machine which had caused the death, needlessly, of many of our pilots, the most inefficient machine and the most inefficient engine ever used for the purposes of war.

Of the first three months after the Fokker made its appearance there were 12 deaths in 17 days of the month of March, 1916. In the 29 days of February there were 18 deaths, and to January 29th, 26 deaths, to say nothing of about 50 pilots wounded and many missing.

Mr. Balfour Browne: How many German deaths took place in the same period?

Mr. Billing said that he did not think there was any use spending valuable weeks inquiring for information which the War Office already had.

Mr. Billing proceeded to give figures as to the number of killed and wounded pilots during the period in which the Germans were using the Fokker type of machine.

Mr. Balfour Browne: This, after all, is war.—I appreciate that; but do, for Heaven's sake, give our men a chance, and see that they are supplied with the best material.

Mr. Butcher: Have you ever flown over the German lines?

"I will answer that question if it is relevant."

Mr. Butcher repeated the question, and Mr. Billing said, "I was flying over the German lines at Verdun the week before last. Of course, I was not doing so officially, but by the courtesy of the French Government."

Mr. Billing read a letter from a squadron commander of the R.F.C., in which he said that the "incapacity and dishonesty with which the Flying Corps is conducted is sufficient to justify drastic charges."

Another letter from a captain in the Flying Corp contained the sentence, "Stick to the point about the murder and Fokker fodder and you will earn all our gratitude. You were perfectly right, and we all know that every time we see a friend has been killed we know there is a murder if he was on a B.E. 2 C."

Mr. Billing, turning to his allegations of technical ignorance and administrative inefficiency on the part of senior officers of the Royal Flying Corps, referred to a detrimental undercurrent of intrigues existing in the corps. The trouble was caused by the existence of four contending groups. The first group was primarily responsible. It consisted of those who had carried on a long and persistent intrigue to get control of both the Air Services and to perpetuate the principles of the Royal Aircraft Factory. The second, while also friendly to the Royal Aircraft Factory, had no ambition but the existence of the military branch. The third recognised the defects of the factory and wanted to take construction away from it. The fourth went in for intrigues of an entirely different kind—namely, between the naval and military wings. The latter tried to keep the Royal Naval Air Service ignorant of its developments in order that the Royal Naval Air Service should compare unfavourably with and be transferred to it.

In order to show inter-Service relations, Mr. Billing mentioned the case of a Royal Naval Air Service man who went to the help of a Royal Flying Corps officer who had fallen into the sea through engine trouble. The commanding officer reprimanded him on the ground that Royal Flying Corps men had no right to fly over the sea. "If they fall in, let them drown." In Paris the administrative officers of the Royal Flying Corps and Royal Naval Air Service were not even on speaking terms.

Promotion was one of the fundamental causes of intrigue. Neither seniority nor air experience was taken into consideration. Mr. Billing promised to pick out two of the worst examples of improper promotion. There was, further, an excess of generals and other senior officers as compared with the Royal Naval Air Service and the French service. There were Canadian pilots in the Royal Flying Corps who could not get British flying pay.

The Chairman: This was in *Punch* three weeks ago.—Then I trust the necessary good work has been done.

Continuing, Mr. Billing said that there was waste of expense in training. The system of teaching pilots to land before they could fly was quite wrong, as was also the employment of a stable machine like the B.E. 2 C at an early stage of training. There should be far more encouragement of civilian schools. The cost of training a pupil at a civilian school was about £75, while the cost at a Royal Flying Corps school was nearer £500. The administration of the Royal Flying Corps was trying to get hold of everything, ultimately even of the Royal Naval Air Service itself.

During the sitting, Mr. Billing said that he made the request for legal assistance in the interests of others at their wish. He also raised the question of the status of witnesses, and ascertained that they were privileged and not liable for slander.

On June 26th the hearing was resumed, Mr. Billing continuing his evidence.

Mr. Billing, proceeding to give some examples of rapid promotion, said he would content himself with giving two or three cases, but he would prefer not to mention names. The first was the case of an



officer who was taken from the Army, and who qualified as a pilot at the Central Flying School just prior to the war. He went out to France as an observer, and, Mr. Billing understood, never flew as a pilot. He returned to England at the end of September, 1914, and at that time was a captain in his own regiment. In October he became a flight-commander, in November a squadron-commander, and five weeks later a wing-commander, the equivalent of a lieutenant-colonel. Within 12 months he was made a brigadier-general. From the time that this officer returned from France to the time he was made a general he was at the Central Flying School, but so far as Mr. Billing had heard he had not had an opportunity of proving himself in any great degree. This rapid promotion had caused a great deal of dissatisfaction among officers in the Service and in the Royal Flying Corps. Mr. Billing handed up the name of the officer in question.

Mr. Billing's next example of rapid promotion was the case of an officer who had about 15 or 20 hours' flying on school machines and had never flown during the war. He qualified as a pilot at the Central Flying School in January, 1913, and went to the Flying Corps Reserve. Soon after the war broke out he received a staff appointment, and rejoined the Flying Corps in November, 1914. In August, 1915, he was sent to France as a wing-commander, although he had never held the ranks of flight or squadron-commander. About four months later he was made a brigadier-general.

Mr. Billing added that he had no comments to make on the ability of these officers except in so far as they reflect the general dissatisfaction and lack of efficiency in the Flying Corps.

Mr. Bright: What do you mean by general dissatisfaction?

Mr. Billing: The undercurrent of jealousy and intrigue throughout a very considerable part of the Service.

The Chairman: I can understand dissatisfaction about promotion, but not what that has got to do with the efficiency of machines.

Mr. Billing contended that improper promotion had a tendency to bring into high places officers who were not efficient in the particular work for which high-placed officers were responsible. If there were five brigadier-generals in France at present, four could well be removed to more useful work without interfering with the efficiency of the Flying Corps. He went on to read a letter from an officer complaining of the unsatisfactory system of promotion. One of these, from an officer of the Royal Naval Air Service, contained a suggestion that the Royal Flying Corps was promoting as many men from that corps as possible because they desired to have all the higher billets when the inevitable amalgamation of the Royal Flying Corps and the Royal Naval Air Service came about. Another letter from an officer of the Royal Naval Air Service was read by Mr. Billing, in which reference was made to his efforts to convince the Committee by arguments on technical points.

The Chairman: Will you read that part which really matters?

Mr. Billing: I must ask you to allow me to go on with my evidence. I am doing this purely as an act of grace, of patriotism, and I must ask you to be reasonable in allowing me to present my evidence in the way that is most facile for me. Proceeding with the reading of the letter, which referred to the state of things that existed being due to "the blind and unreasoning faith of the Chief of the Royal Flying Corps in the R.A.F. and its administration generally," he said he had written to the writer for permission to mention his name.

Later in the proceedings Mr. Billing received a telegram from the writer as follows:—"Certainly; will attend, subject to my superior's consent.—THURSTON."

The witness next turned his attention to a report which he said had been prepared about March by certain squadron commanders in the interests of the corps. It had been given to another member of Parliament, who found it too technical for him to deal with. It had therefore been handed to Mr. Billing. He was not in a position to give the names of the writers. The report dealt with matters prior to January, 1916. While commenting upon it, Mr. Billing, referring to a suggestion that aerodromes required improvements for landing at night, said that there were thousands of men of the Flying Corps who might be much more profitably employed in working to this end than in the work in which they were engaged as mechanics. The size of a night landing ground should not be less than one-third of a mile square. In his opinion not one pilot in four made a good night pilot. Every night flying man should be specially chosen and trained, and he understood such was the case now.

It required skill and not "mere pluck" to engage a Zeppelin at night. He understood a special training was now being given, but this had not been the case until recently. The authorities should consider and choose the one and best machine for night flying—whether it should be a tractor or a pusher. Witness preferred a tractor, but believed in a pusher—admittedly a very fine distinction. He would not send up anyone at night unless he were on more than equal terms with the enemy.

The Chairman: If your point is, in effect, that there are machines not equal to the work, will you tell us about that?

After a discussion on certain types of machine, Mr. Billing said there was an absolute necessity for greater engine speed in night-flying machines. The armament of machines flying at night should also be sufficient. It was useless sending up a man to shout at a Zeppelin. He should have something to explode, or to shoot the Zeppelin down.

Mr. Billing proceeded to deal with what he considered should be the armament of machines for night attack.

Sir D. Henderson: The question of armaments should be gone into in private.

Mr. Billing: "Certainly."

The Chairman: You have practically concluded your evidence in public?

Mr. Billing: No, I don't think it will be concluded for some time yet.

The Chairman: Well, take your own time. Please don't hurry.

He next referred to a speech he made in the House of Commons on March 28th, in which, referring to the necessity of fitting dual control, he spoke of an observer whose pilot was shot and he was left helpless at a high altitude.

General Henderson was seen to smile, whereupon Mr. Billing exclaimed: General Henderson thinks this is a subject for mirth. He is responsible for sending up these men in these conditions, and it is a terrible thing for an observer to find a machine at a height of 11,000 ft, diving down, with the pilot out of action behind. It was a terrible thing, and it was not to be wondered at that when men got back alive they felt bitter about these things.

"May I say," remarked Sir David Henderson, "that what amused me was the omission Mr. Pemberton Billing made, not the speech."

"The omission was because I had no wish to touch anything with a dramatic note," replied Mr. Pemberton Billing. "My actual statement (in the speech) was that the man turns around, hearing a cry, and sees the pilot dead behind him."

Quite recently, he added, a death was due to inexperience of dual control. An inquiry was held, but on the authorities suggesting that the finding was not what it ought to be another was held. He understood, however, that they came to the same conclusion. The authorities were of opinion that the passenger helped to bring about the accident. It was the case of the son of the Under-Secretary for War. Lieutenant Tennant was the pilot, and the observer was Captain Jones.

Mr. Butcher: Do you wish us to decide whether dual control is right or not?—No; but I think a recommendation from you that this question should be considered by the Air Board should be made, and a conference of pilots would also be useful.

The Chairman: Surely that is not a question for us to consider.

Mr. Billing next read a "report" sent to him respecting a proposed air raid in France. The men were told to fly to a certain rendezvous, but there were clouds at 3,000 ft, which were 3,000 ft. in thickness; the 30 odd raiders got lost, and each, thinking he was alone, started dropping his bombs. One pilot who thought he was over a German town dropped his bombs on the Belgian headquarters. Eleven or thirteen landed at Dunkirk, and one landed in England. It was reported that in the last case he said to an officer, "I will give myself up." Another who landed on the sands at Dunkirk, thinking he was on the enemy's territory, was about to burn his machine when he was stopped.

The Chairman asked for the date of this occurrence, but on Mr. Billing saying he was not in a position to give it at the moment, though it might easily be verified, the Chairman said he could not admit it at this stage.

Resuming, Mr. Billing read a letter from a second lieutenant of the 9th Somerset, who was prepared to give evidence. He stated that he had had only one hour and twenty minutes in the air before he flew "solo." He had learnt to fly with a quite unnecessary amount of danger, and had had no instruction in the engine. Owing to engine trouble he came down on an old Maurice Farman, against which he had been warned, with a great smash. When his commanding officer saw it, he remarked, "Thank God, that's an old machine." Next day he was told that his services were no longer required, and he was given sick leave. The lieutenant also enclosed a further statement, in which he spoke of "eyewash," and said that when General Henderson came to inspect them they were all busy cleaning their machines, but as soon as he had gone they were all dismissed.

The rest of the proceedings consisted in the reading by Mr. Billing, with explanatory comments, of the report by squadron commanders. It dealt with the early output of the Royal Aircraft Factory in the matter of airships. The small airships of the factory were treated with derision by the Royal Flying Corps. Had the capacity to build a large one existed no doubt a large one would have been built.



The superintendent's failure had been concealed by the transfer of airships to the Royal Navy. The transfer was fortunate for him, or he might have been held responsible for our position to-day.

With regard to factory-designed aeroplanes, the statement criticised each in turn on various grounds. The F.E. 2 B was now probably the best Royal Aircraft Factory machine in the service, and it was copied or cribbed from the de Havilland "pusher." Mr. Billing referred to a certain F.E. 2 B, which had fallen into the enemy's hands, and said that it might have been due to inexperience.

General Henderson: The pilot was shot down by anti-aircraft gun fire, and I think it is most unfair to make these attacks, as he is now a prisoner.

Mr. Billing said both this machine and F.E. 8, similarly a "pusher," were good machines, but inferior to Mr. de Havilland's machines, and they were also more complicated. The Royal Aircraft Factory had unlimited resources, but had nevertheless failed to produce anything to compare with what had been produced by private firms. It had been impossible for private constructors to make a profit on factory-designed machines, owing to the incessant alterations in the drawings. Now there was less ground for complaint. But constructors were still being forced to turn out the inferior factory machines.

The delay, due to alterations, would not have occurred if constructors had been allowed to go ahead with their own machines. Mr. Billing mentioned that he himself was building machines for Germany when war broke out. The Nieuport firm, with 1,600 men, were turning out seven and a half machines a day, while the Royal Aircraft Factory had cost the country a dead loss of £5,000,000. The last 60 machines had cost about three-quarters of a million, or £12,000 apiece.

Sir Charles Parsons (a member of the committee which recently inquired into the management of the Royal Aircraft Factory): We have heard nothing but allegations against the factory. To my certain knowledge there is a very great deal of good in it. There may be things which might be improved.

Mr Billing said that he would be very pleased to hear that all the public money had not been wasted. The factory machines were substantially the same as they were at the beginning of the war, while private firms had made great improvements. The Hispano-Suiza engine was excellent as compared with the factory "12-cylinder," which was now quite out of date. We had had an opportunity of considering the design of this engine last year.

The committee adjourned to the following morning.

## AIRCRAFT WORK AT THE FRONT.

### OFFICIAL INFORMATION.

#### British.

War Office, June 20th.

"From General Commanding in Egypt.—A most successful raid was carried out on Monday by the Royal Flying Corps against a large enemy aerodrome about five miles south of El Arish (95 miles east of the canal) and 100 miles from our nearest aerodrome. This aerodrome, which consisted of 10 large hangars, was located on the 13th inst., and a strong raid was immediately planned in which 11 machines took part.

"The first machine to arrive discovered an enemy plane on the ground apparently about to fly, as the pilot and observer were in their places, with several mechanics at hand. Our pilot descended at once to a height of 100 ft., and destroyed the plane, killing the hostile pilot, observer, and mechanics. Another enemy plane found on the ground was also destroyed. Of the ten hangars two were set on fire and completely destroyed, while four were hit many times with bombs. It is presumed that these hangars contained aeroplanes, and in all probability at least five, and possibly more, were put out of action.

"Our machines delivered their attack from a height of 600 feet, but in spite of being under very heavy rifle, machine-gun, and anti-aircraft-gun fire they continued the attack until all their bombs, 76 in number, were expended. In addition to the aerodrome, enemy camps and troops were assailed both with bombs and machine-gun fire. We lost three machines in the course of the operations. Of these one was forced to descend about two miles north of the aerodrome. The pilot, however, finding that escape was hopeless, set the machine on fire to prevent the enemy from capturing it. The second fell into the sea, the pilot being rescued by a motor-boat. The third was compelled to land about eight miles west of El Arish. The pilot tried to carry out repairs, and while doing so he was seen by one of our escorting machines, which at once landed at considerable risk, picked him up, and flew back a distance of 90 miles to Kantara, carrying two passengers in addition to the pilot—an extremely gallant feat.

"I cannot speak too highly of the manner in which this attack was carried out."

General Headquarters (France), June 22nd.

"Yesterday in the air there was marked decrease in the activity of the enemy, while our machines carried out a good deal of successful work in co-operation with the artillery."

General Headquarters (France), June 23rd.

"Yesterday, in fine weather, there was considerable activity in the air along the front. There were 22 combats in the air, mostly indecisive, but two of our machines were brought down.

"Our artillery obtained direct hits on two hostile anti-aircraft batteries, and the ammunition at one of these batteries continued to explode for 20 minutes."

General Headquarters (France), June 25th.

"We destroyed five hostile kite balloons this afternoon."

General Headquarters, June 26th.

"One hostile kite balloon in addition to those already reported was destroyed by our aircraft yesterday, making a total of 6 out of 15 balloons attacked. The whole six were seen to fall in flames."

#### French.

Paris, June 22nd. Afternoon.

"One of our air squadrons gave chase to a group of enemy aeroplanes which intended to bombard the villages of the valley of the Meuse. In the course of the pursuit one of our pilots brought down

two German machines, one of which fell in flames north-east of St. Mihiel, and the other crashed to the ground near the Fort of Gonicourt.

"In the night of the 21st-22nd our bombing aviators threw numerous projectiles on the stations and railway lines at Apremont, Grandpré, Sepsarges, Romagne and Brioules, and on the bivouacs of the Bois de Consenvoye and the military establishments to the north of Thionville."

Paris, June 22nd. Evening.

"As a reprisal for the successive bombardments carried out by the Germans during the last few days on the open towns of Bar-le-Duc and Lunéville, our air squadrons have effected several operations in enemy territory.

"During the night of June 21st-22nd, 18 bombs were dropped on the town of Tièves, where a great fire was observed. To-day a group of 9 aeroplanes dropped 40 bombs on Karlsruhe—110 miles from Nancy.

"Another group of 10 aeroplanes bombarded Mulheim, on the right bank of the Rhine. Fifty shells were dropped on the military establishments of the town. The effectiveness of these two bombardments was clearly observed. Pursued by a squadron of Fokkers on returning from Mulheim, our machines engaged them, and in the ensuing fight a Fokker was brought down. One of our machines was compelled to land in consequence of engine trouble.

"In the course of the day our chasing aeroplanes were also actively employed.

"Sub-Lieutenant Nungesser brought down his eighth aeroplane, which fell at La Morville, in our wire entanglements.

"To the south of Libons a German machine brought under machine gun fire simultaneously by Sergeant Chainat and Sub-Lieutenant Guynemer crashed to the earth. Sergeant Chainat up to the present has brought down four machines, and Sub-Lieutenant Guynemer nine.

"Finally, in the region of Einville, north of Lunéville, an enemy aeroplane was brought down by the fire of our artillery.

"The two German machines which fell yesterday morning to the north-east of St. Mihiel and near the Gonicourt Fort were brought down by Sub-Lieutenant Chaput, who has up to the present felled six enemy aeroplanes."

Paris, June 25th. Afternoon.

"Last night German aeroplanes dropped bombs on Lunéville, Baccarat and St. Die. The material damage was unimportant. Some children were wounded at St. Die.

"Note has been taken of this action with a view to reprisals."

#### Russian.

Petrograd, June 20th.

"In the region of the station of Okhotnikovo, to the east of Sarny, we captured a German aeroplane with the pilot and observer."

Petrograd, June 21st.

"Enemy aeroplanes dropped about 40 bombs on the station of Vileika (east of Smorgon)."

Petrograd, June 22nd.

"During the day our artillery brought down two German aeroplanes, which fell in our lines, one two versts (about 1½ miles) south of the station of Listopady on the Bologoye-Siedletz railway, and the other near the Juk Farm, ten versts (6½ miles) south-east of the mouth of the Oginski Canal. The pilots and observers were killed and the machines were smashed to pieces."



*Petrograd, June 24th.*

"An enemy air squadron dropped some bombs on Rioudnia-Potchaievskia.

"One of our aeroplanes dropped bombs with success on Mamahatun."

*Petrograd, June 25th.*

"Enemy aeroplanes dropped twenty bombs on the railway station of Polotchany, south-west of Molodetchno.

"One of our aeroplanes, in a daring flight over the enemy lines, was brought down by his artillery. Our airmen, Captain Bankeiff and Lieutenant Pavloff, although wounded by the continued fire of the enemy, succeeded in landing near our advanced lines."

*Petrograd, June 26th.*

"Yesterday morning two of our airmen, Sub-Lieutenant Kvasskoff and the non-commissioned officer Vladimiroff, died heroic deaths."

#### Italian.

*Rome, June 21st.*

"Squadrons of our Caproni and Savoia Farman aeroplanes, amounting to thirty-four machines, bombarded the Pergine aviation station at the head of the Val Sugana. They were fired on by guns and engaged by the enemy airmen, but returned safely after bringing down three hostile machines."

*Rome, June 24th.*

"Enemy aeroplanes dropped bombs at various points on the Lower Isonzo without any damage. One machine was hit by our artillery and fell in flames near Merna, south of Gorizia."

*Rome, June 25th.*

"Hostile aircraft dropped bombs on Tolmezzo-Portogruaro-Ponte Piave, and the Grado Lagoon, causing no casualties and only slight damage. Our Caproni aeroplanes bombarded enemy encampments on the Asiago Plateau, and returned safely."

*Rome, June 26th.*

"Hostile aircraft dropped bombs near Ala and on Padua, Fonzaso, Primolano, and Grigno. There was no casualty or damage. Our aeroplanes bombarded the enemy's parks on Mount Bover (south-east of Caldonazzo), the railway station of Oberdrauburg, and the depôts at Dellach (Drave valley). In each of these places large fires were observed."

#### German.

*Berlin, June 20th.*

"Our airmen dropped numerous bombs on the military establishments at Bergues, near Dunkirk, and Souilly (south-west of Verdun).

"A Russian biplane was compelled to land west of Kolodot (south of the Narocz lake), and was destroyed by our artillery fire.

"Bombs were dropped on the railway buildings at Wilejka."

*Berlin, June 21st.*

"At various points of the front, between the Belgian-French frontier and the Oise, lively activity has been displayed by the artillery, by mining detachments, and also the air service.

"A British aeroplane plunged to earth near Puisieu (north-west of Bapaume) as the result of our anti-aircraft fire. One of the occupants was killed. A French aeroplane was compelled to land near Kemnat (north-east of Pont-à-Mousson), and the occupants were made prisoners.

"The railway stations at Zalesie and Molodecano were attacked by German aerial squadrons."

*Berlin, June 22nd.*

"We dropped bombs on a railway bridge over the Pripet south of Luninets, east of Pinsk."

*Berlin, June 23rd.*

"Yesterday enemy aviators attacked Karlsruhe, Mülheim (Baden), and Treves. We have to deplore a number of civilian victims. No considerable military damage could be, or was, done at these places. The enemy lost four aeroplanes, two of them being forced to land near Niederlauterbach and Lembach respectively. Of the occupants who were taken prisoners two were English. The other two machines were brought down in an air fight. In this fighting Lieutenant Hoehndorf brought down his sixth enemy machine.

"Besides these enemy aeroplanes we brought down one in the district of Ypres, another east of Hulluch, which was the fifth brought down by Lieutenant Mulzer, and others near Lancon, south of Grandpré (near Merxheim), and east of Gebweiler (south-

west of Sennheim). So that the enemy lost nine aeroplanes altogether.

"Our air squadrons attacked the military works at St. Pol and an enemy camp and dugouts west and south of Verdun."

*Berlin, June 24th.*

"At various points of the front there was vigorous artillery, patrol and aerial duelling.

"Near Haumont a French battle-monoplane was brought down in an air fight. Lieut. von Wintgens, near Blamont, shot down his seventh enemy aeroplane, namely a French biplane.

"A German air squadron attacked the railway station of Poloczany, south-west of Molodetchno, where movements of troops had been observed. The railway station at Luniviec was also bombarded."

*Berlin, June 26th.*

"German air squadrons attacked with bombs the British camp near Gas, east of Doullens."

#### Austrian.

*Vienna, June 21st.*

"Two enemy aviators were shot down."

*Vienna, June 23rd.*

"On the evening of June 22nd a squadron of seaplanes successfully bombarded enemy positions near Monfalcone. Early the following morning a squadron of seaplanes attacked Venice. On Forts Nicolo and Albertoni, on the gasworks, and especially on the arsenal, many full hits were obtained, causing strong conflagrations. The aeroplanes were heavily but unsuccessfully fired at, but returned safely."

*Vienna, June 24th.*

"On Friday evening, Naval Lieutenant Bamfeld, eight minutes after he started off to attack an enemy seaplane which was approaching to attack Trieste, brought down an enemy aircraft. The observer, an Italian, the body of the dead pilot, a Frenchman, and the captured seaplane were brought to Trieste.

"This morning one of our air squadrons bombarded the railway bridge and station at Fonte di Piave and Grado with very good success, hitting the bridge four times. In spite of heavy gunfire all our aeroplanes returned safely.

"An hour later a French seaplane was brought down in an air battle in the Gulf of Trieste by Lieut. Bamfeld, and fell into the sea about 2½ miles from Grado. Under cover of enemy batteries an armed motor boat succeeded in the salvage of the seaplane. Its occupants must have been wounded.

"On the evening of June 22nd a squadron of seaplanes successfully bombarded enemy positions near Monfalcone. Early the following morning a squadron of seaplanes attacked Venice. On Forts Nicolo and Albertoni, on the gasworks, and especially on the arsenal, many full hits were obtained, causing strong conflagrations. The aeroplanes were heavily but unsuccessfully fired at, and returned safely."

#### Turkish.

*Constantinople, June 21st.*

"At 9 o'clock on Sunday morning nine enemy aeroplanes attacked El Arish with bombs and machine-guns. Two aeroplanes were shot down by our fire. One of them was observed to fall down wrapped in flames. This air attack, which lasted two hours, was without result. The enemy was unable to do any damage."

*Constantinople, June 24th.*

"On Thursday morning one of our aeroplanes attacked two enemy aeroplanes which were flying over the Gulf of Saros, and pursued them as far as Imbros. Our artillery fire drove off an enemy monitor which tried to approach Ertcha."

#### Bulgarian.

*Sofia, June 21st.*

"Enemy aviators unsuccessfully bombarded Pardeitzi and Doiran and inhabited places in the Rupel sector.

"One of our aeroplanes dropped several bombs on an enemy transport near Porto Lagos, hitting it and severely damaging the bridge."

*Sofia, June 26th.*

"Enemy aeroplanes dropped incendiary bombs without result on the fields in the Mestes Valley and Porto Lagos and Tepedjik."

#### From Other Sources.

THE *Sydsvenska Dagblad* on June 20th reported that German aerial activity in the Baltic during the past few days had been considerable. Every day several Zeppelins had patrolled the Swedish south coast, inspecting the fortifications at Karlskrona and Kalmar. Swedish torpedo-boats are closely watching them to prevent any violation of neutrality. An Austrian aeroplane on the 20th flew over Padua at a great height and dropped two bombs, one of which caused very slight material damage and slightly injured five workmen. Aeroplanes also flew over Vicenza, but did not drop any bombs.

According to a report from Amsterdam on June 23rd:—

"In the early hours of June 23rd enemy aeroplanes flew over Venice and dropped several bombs. Six persons were killed and several injured, while slight damage was done to some buildings."

The *Daily Mail* correspondent at Amsterdam, writing on Monday, says:—

"All yesterday German seaplanes from Zeebrugge were very busy."

